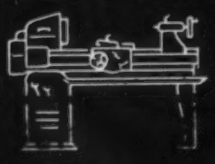
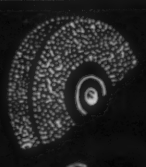
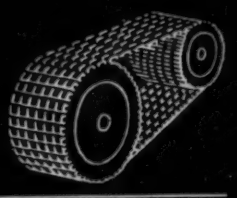
PURCHASING

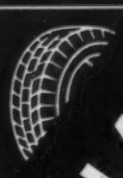
PURCHASE FOR PROFIT

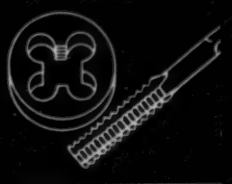



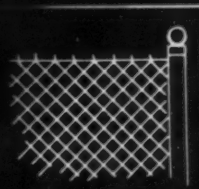
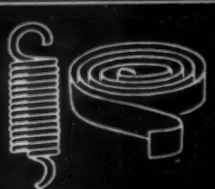
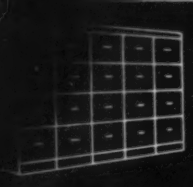
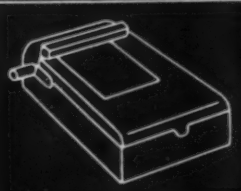
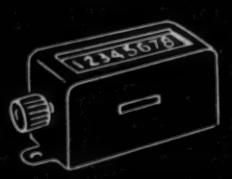


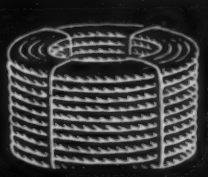
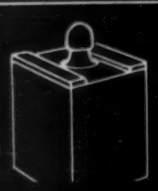


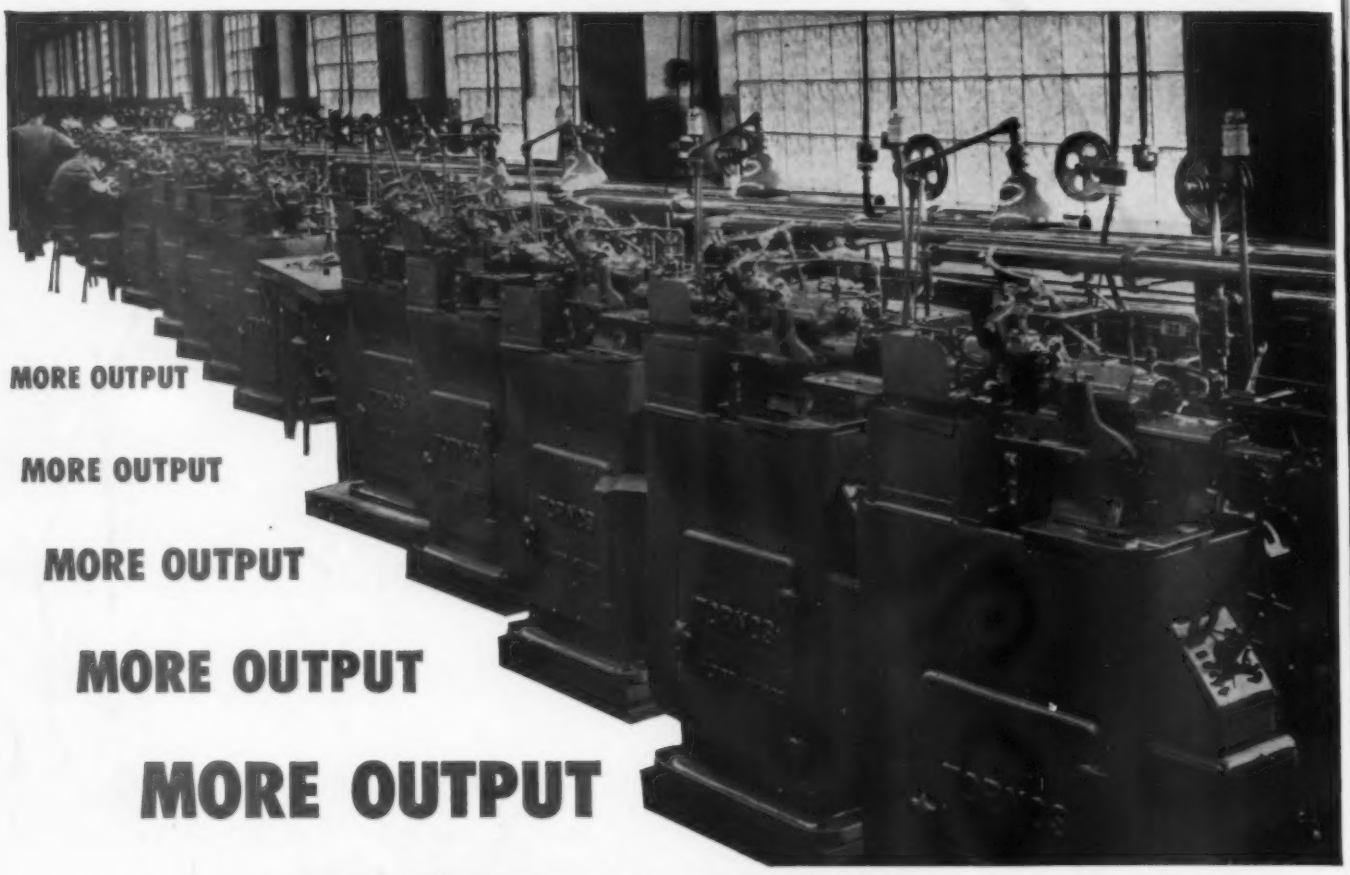





NOVER-MAST
BLICATION
•
50 CENTS



. . . LOWER UNIT COST

. . . with the help of Texaco Lubricants and Texaco Lubrication Engineering Service

Texaco can help you get increased production and lower unit costs from your machines. Here's just one example:

> A Chicago manufacturer,* *on one job alone,* increased output 3,528 pieces a month, and saved $245 a month through reductions in machine down time.

Whatever you make or wherever your plant is located, you can count on —

Texaco Lubricants — a complete line of specialized, tops-in-quality oils and greases to keep production machines and plant equipment running smoothly, with minimum down time.

Texaco Lubrication Engineering Service—skilled know-how embracing every field of industry to work with your production men and engineers. A Texaco Lubrication Engineer will gladly help you select the right lubricants for every job, show you how to use them, help you simplify your lubrication procedures.

More than 2,000 Texaco Distributing Plants in the 48 States to provide convenient sources of supply for both lubricants and service. Just call the nearest one or write:

The Texas Company, 135 East 42nd Street, New York 17, N. Y.

**Name on request*

TEXACO Lubricants, Fuels and Lubrication Engineering Service

Faithfully yours

50 *for Fifty Years*

TUNE IN . . . TEXACO STAR THEATER starring MILTON BERLE on television every Tuesday night. See newspaper for time and station.



The Protection of Century Type TEFC* Motors Keeps Production Rolling

Totally Enclosed Fan Cooled Motors*

- Smooth exterior surface—easy to clean.
- Cast iron frame resists rust and corrosion.
- Rugged construction—safety factor for rough handling.
- Integral cast feet resist corrosion when mounted in low places where processed material may contact the feet.

Your Maintenance Man..

who must keep your Production Turning, knows how to evaluate the inside of the Motor. Ask him about these Century Construction features.

Century type TEFC protected type motors are very popular in the chemical and food processing industries for resisting rust and corrosive fumes. They are widely used in the metal working industries to protect the vital parts against abrasive dust or gritty oil fog.

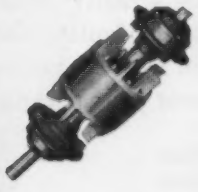
Specify Century motors on the motorized equipment you purchase, or call a Century branch office or a Century distributor when you purchase motors. Century manufactures a complete line from ⅛ to 400 H. P.



- Vital parts of motor protected — sealed-in inner frame.
- Reverse direction of motor without changing fan — Fan runs in either direction.



- Uniform ventilation — surrounding outside of inner frame.
- Smooth straight-through ventilating passages.
- Winding electrically insulated 6 different ways.



- Uniform rotor winding — high pressure cast aluminum.
- Ball bearing housing keeps grease "in"—dirt "out"—lubricated for several years' normal service, with grease plugs when you want to lubricate bearings.



- Easy to remove fan guard for inspection—2 screws hold steel fan guard in place.

Century MOTORS

CENTURY ELECTRIC COMPANY
1806 Pine Street • St. Louis 3, Missouri
Offices and Stock Points in Principal Cities

CE-755

PURCHASING published monthly, by PEEAYE, INC., subsidiary CONOVER-MAST PUBLICATIONS, INC., Publication Office, Orange, Conn. Editorial and Executive Offices, 205 East 42nd St., New York 17, N. Y. Entered as second class matter August 9, 1942, at the Post Office in Orange, Conn., under the act of March 3, 1879. Subscription rates: United States, U. S. Possessions and Canada; $4 per year; elsewhere $6 per year. Single copies 50c. Volume XXXII, No. 5.

QUIZ ON SUBJECTS OF General INTEREST



KNOW THIS GENERAL?

KNOW THIS GENERAL?





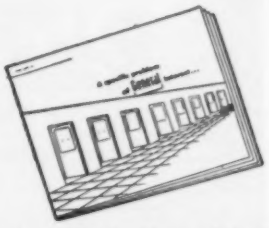
KNOW THIS GENERAL?

General

EVERYBODY KNOWS THIS GENERAL

Just about everybody interested in better packaging knows that the bar and 5 stars identify the General Box Company. For more than a quarter of a century we have been designing containers that are light-weight, extra-strong—that are actually "Part of the Product." If you have a packaging problem, either military or civilian, be sure to write us. Our new laboratory in Des Plaines—surely one of the country's finest—is available to meet your packaging needs.

Central figure: General Phil Sheridan. Upper right: General Foch. Central right: Duke of Wellington.



Write for your copy of "The General Box"

It tells the complete packaging story. It shows how you too can cut packaging and shipping costs. Write today.

DISTRICT OFFICES AND PLANTS: Cincinnati, Denville, N. J., Detroit, East St. Louis, Kansas City, Louisville, Milwaukee, Sheboygan, Winchendon, General Box Company of Mississippi, Meridian, Miss., Continental Box Company, Inc., Houston, Dallas

General

BOX COMPANY

GENERAL OFFICES:
1843 Miner Street, Des Plaines, Ill.



"Old Luigi Galvani* would certainly get a shock out of this!"





*Luigi Galvani—1732-1798. Famous physicist who discovered the process of generating electricity chemically. Father of Galvanizing process.

Inland's new continuous galvanizing line . . . the longest in the U. S. A.

Fed into this new galvanizing line, cold-rolled strip is flame-cleaned, annealed and galvanized. It emerges a full city block away, cut to length or coiled.

Galvanized steel sheets produced on this line under the patented Sendzimer process, and bearing Inland's trade mark, TI-CO, have no brittle iron-zinc layer like ordinary galvanized sheets. That's why TI-CO can be severely formed without flaking or peeling. And TI-CO's bright, smooth surface increases sales acceptance of products fabricated from it.

This new galvanizing line is another of the improved steel-making facilities that help Inland to produce better quality steels in record-breaking quantities.

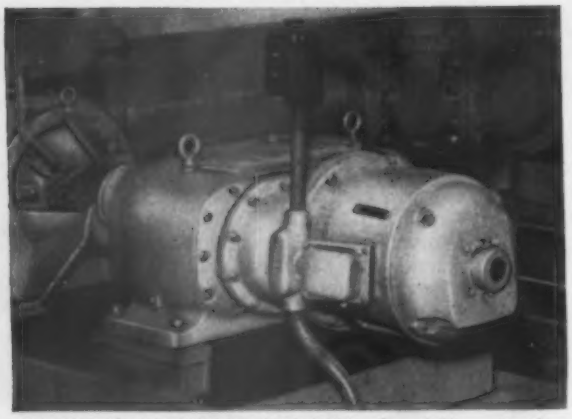
INLAND

INLAND STEEL COMPANY
38 S. Dearborn St. • Chicago 3, Illinois



POWER—WHEN AND WHERE YOU NEED IT. Smooth, steady power for any production job begins when you install Graybar-distributed G-E motors and controls. AC or DC ... general- or special-purpose, G-E Tri-Clad motors offer you extra protection against physical damage, electrical breakdown, and operating wear. Given ordinary care, General Electric motors provide dependable service under even the toughest operating conditions.

This production team pays off in performance



MATCHING G-E MOTOR CONTROLS give full protection against injurious overloads ... provide maximum flexibility of motor operation. All live parts are completely enclosed, yet cases have ample conduit knock-outs and terminals for easy installation.

General Electric Tri-Clad motors and matching G-E controls make a hard-to-beat production team. You get reliable, uninterrupted performance shift-after-shift—a practical defense against downtime due to motor failure.

Graybar distributes the complete line of G-E motors and controls. Your local Graybar Representative can help you select the proper equipment for any machine-drive requirement...help you analyze special service conditions that demand totally-enclosed motors, variable speed motors, gear motors, or reversible motors.

Check with him, too, for details on the G-E Motor Exchange Plan. Covering popular fractional and integral ratings, this plan makes emergency replacement of inoperable motors a simple over-the-counter transaction.

Graybar can furnish you or your electrical contractor with practical advice on the installation and usage of over 100,000 different electrical items. For help in speeding lighting, communication, ventilation and wiring projects of all types, call our nearest office. *Graybar Electric Co., Inc. Executive Offices: Graybar Building, New York 17, N. Y.* 245-175

Call Graybar first for... Everything Electrical

GraybaR QUALITY

IN OVER 100 PRINCIPAL CITIES

PURCHASING

The National Magazine of Industrial Procurement

VOL. 32, No. 5 MAY, 1952

A Growing Responsibility 85
In This Issue 87
Stop! . . . The Light is Flashing Red for Dictatorship 89-90
We Can't Afford Untrained Buyers, C. F. Ogden 91
Cost Reductions are Important Yardstick, C. Warner McVicar 94
Saving by Specification, Product, Vendor and Quantity Analysis, *Fred W. Frohn* 99
Purchasing—Partner in Modern Management 103-110
Crawford H. Greenewalt, President, E. I. duPont de Nemours & Co.
A. W. Peake, President, Standard Oil Company, Indiana
Frank M. Folsom, President, Radio Corporation of America
Brehon Somervell, Chairman and President, Koppers Company, Inc.
Ernest T. Weir, Chairman, National Steel Corporation
E. J. Thomas, President, Goodyear Tire & Rubber Company
K. C. Towe, President, American Cyanamid Company
A. B. Homer, President, Bethlehem Steel Corporation
J. H. Rand, President, Remington Rand Inc.
Dwight P. Joyce, President, The Glidden Company
Charles C. Gates, President, Gates Rubber Company
Henry F. Dever, President, Brown Instruments Division
Charles Allen Thomas, President, Monsanto Chemical Company
H. C. Ramsey, President, Worthington Corporation
Harry B. Higgins, President, Pittsburgh Plate Glass Company
P. M. Arnall, President & Gen. Mgr., Lunkenheimer Company
A. R. Fisher, President, Johns-Mansville Company
John M. Olin, President, Olin Industries, Inc.
John R. Hoover, President, B. F. Goodrich Chemical Company
Charles A. Higgins, President, Hercules Powder Company
Every Requisition is a Challenge ..... *Herbert Layport* 111
Cash-In On Management Recognition ..... *George A. Renard* 116
They are to be Congratulated ..... *Charles Sawyer* 117
Purchasing Men Deserve Credit ..... *Henry H. Fowler* 117
Cost Reductions Originated by Purchasing Agents 118-122
Rulon Nagely, W. R. Murray, E. H. Weaver, C. B. Johnson, E. F. Andrews, J. L. Hyatt, George Stone, George H. Cole, G. A. Fay
Purchasing's Goal is Profit 123-125
C. L. Sheldon, Clyde H. Porter, B. Knox Sprung, C. A. Ilgenfritz, S. W. MacKenzie, T. A. Paulsen, H. F. Jones, L. A. Fagan, Geo. L. Brown
Standardization Simplifies Procurement ..... *T. D. Jolly* 126
New Tools, New Methods, New Uses, Sixty Cost-Saving Case Histories 129
Reader-Service Prepaid Postcard 135
New Machine Tools and New Uses Cut Production Costs 144
Cost Savings with Electricity 150
Materials and Components, Many Opportunities for Cost Savings 156
Products Finishing, New Methods and Materials Open Way for Lower Costs 168
Materials Handling Costs Cut 50% and More 174
Packaging Case Histories Reveal Ways to Cut Costs 185
Maintenance Takes 5% of Sales Dollar, Sixty Cost-Saving Case Histories 195
Spending $6,000,000 Annually for Office Equipment and Supplies *W. D. Bish* 232
Major Part of O.E.S. Buying is Highly Competitive 242

CASE HISTORIES OF SAVINGS

Production Tools and Equipment 130
Machine Tools 145
Electrical 151
Materials-Components 157
Product Finishing 169
Materials Handling 175
Packaging, Shipping 186
Maintenance 196
Office Equipment and Supplies 244

MONTHLY FEATURES

Purchasing Previews 13
Late Trade Bulletins and Catalogs 19
F.O.B. 28
Office Equipment and Supplies 231
Among the Associations 268
Personalities 304
Buyers and Sellers Mart 510
Index to Advertisers 512

STUART F. HEINRITZ ..... *Editor*

B. P. MAST ..... *Chairman of the Board*
HARVEY CONOVER ..... *President and Treasurer*
A. M. MORSE, JR. ..... *Vice President and Manager*
A. H. DIX ..... *Vice President, Research*
GILBERT B. FERRIS ..... *Secretary*

EDITORIAL STAFF

GEORGE E. HENRY ..... *Associate Editor*
PAUL V. FARRELL ..... *Associate Editor*
A. N. WECKSLER ..... *Washington Editor*
L. E. McMAHON ..... *Production Manager*
A. M. GRADY ..... *Production Assistant*
E. C. ARINK ..... *Art Director*
DAVID BURKE ..... *Associate Art Director*

ADVERTISING REPRESENTATIVES

ALEX G. GRAAM ..... *New York*
RAY RICHARDS ..... *New York*
C. R. KINGSLEY ..... *New York*
WAYNE W. GEYER ..... *Chicago*
H. L. PELOTT ..... *Chicago*
RICHARD C. GROVE ..... *Cleveland Manager*
FORREST C. PEARSON ..... *West Coast Manager*
EDWARD M. BUCK ..... *Southern Representative*

EDITORIAL AND EXECUTIVE OFFICES

205 East 42nd Street, New York 17, N. Y.

BRANCH OFFICES

737 NORTH MICHIGAN AVENUE ..... *Chicago 11, Ill.*
435 LEADER BUILDING ..... *Cleveland 14, Odio*
5478 WILSHIRE BLVD. ..... *Los Angeles 36, Cal.*
5 IVY STREET BLDG. ..... *Atlanta 3, Ga.*
3735 DURANCO BLDG. ..... *Dallas 9, Texas*
NATIONAL PRESS BUILDING ..... *Washington, D. C.*

Published monthly by Peeaye, Inc.
Subsidiary of
CONOVER-MAST PUBLICATIONS, INC.
Printed at Orange, Conn.

CONOVER-MAST PUBLICATIONS
MILL & FACTORY
PURCHASING
AVIATION AGE
CONSTRUCTION EQUIPMENT
LIQUOR STORE AND DISPENSER
CONOVER-MAST PURCHASING DIRECTORY
CONOVER-MAST BOOK DIVISION

PURCHASING is an independent journal, not the official organ of any association. Established 1915 as "The Purchasing Agent". Consolidated with "The Executive Purchaser"

Contents are indexed monthly and annually by the Engineering Index Service.

Subscription rates: United States, U. S. Possessions, and Canada: $4 per year; elsewhere, $6 per year. Single copies, 50¢.

ABC NBP

Printed in U.S.A., by The Wilson H. Lee Co., Orange, Connecticut


WHY SHOP AROUND
WHY ALL THE RED TAPE
WHY UNKNOWN QUALITY
WHY WASTE TIME
WHY SACRIFICE SERVICE
WHY ALL THE INVENTORY
get on the
MASS-PURCHASE ROUTINE SUPPLIES ALL ON 1 ORDER AUTOMATICALLY ...SAVES!
SAVES TIME
OSBORN HIT PARADE
OF LEADING BRAND BRUSHES!
OSBORN MAINTENANCE BRUSHES
OSBORN POWER BRUSHES
OSBORN PAINT BRUSHES

BRAND WAGON!



BUY LEADING

BRANDS

of industrial supplies from your trusted

Industrial Distributor

...GOOD SERVICE AS HANDY AS YOUR PHONE

SAVES TIME

SAVES MONEY

OSBORN®

...YOUR BRAND IN BRUSHES

Built for Industry by the Company that knows Industry's problems.

THE OSBORN MANUFACTURING COMPANY

5401 Hamilton Avenue *Cleveland 14, Ohio*

Distributed by the people who live with Industry's problems...Your Industrial Distributor.

COPYRIGHT 1953 OSBORN MFG. CO.



Casey's got control
over bumps and batters!

Casey's the nemesis of the twilight league—he's got his old stuff back—throws 'em in like the big leaguer the scouts say he could be. "Give the boss credit," quips Casey. "His tire replacement program did it. These MONARCH MONO-CUSHION TIRES pussyfoot over the floors, soak up jolts and jars instead of me. Now, I arrive at the ball park shake-free and sure. Don't forget the company wins, too,—with a champ 'ball club' plus big league savings on truck and floor maintenance."

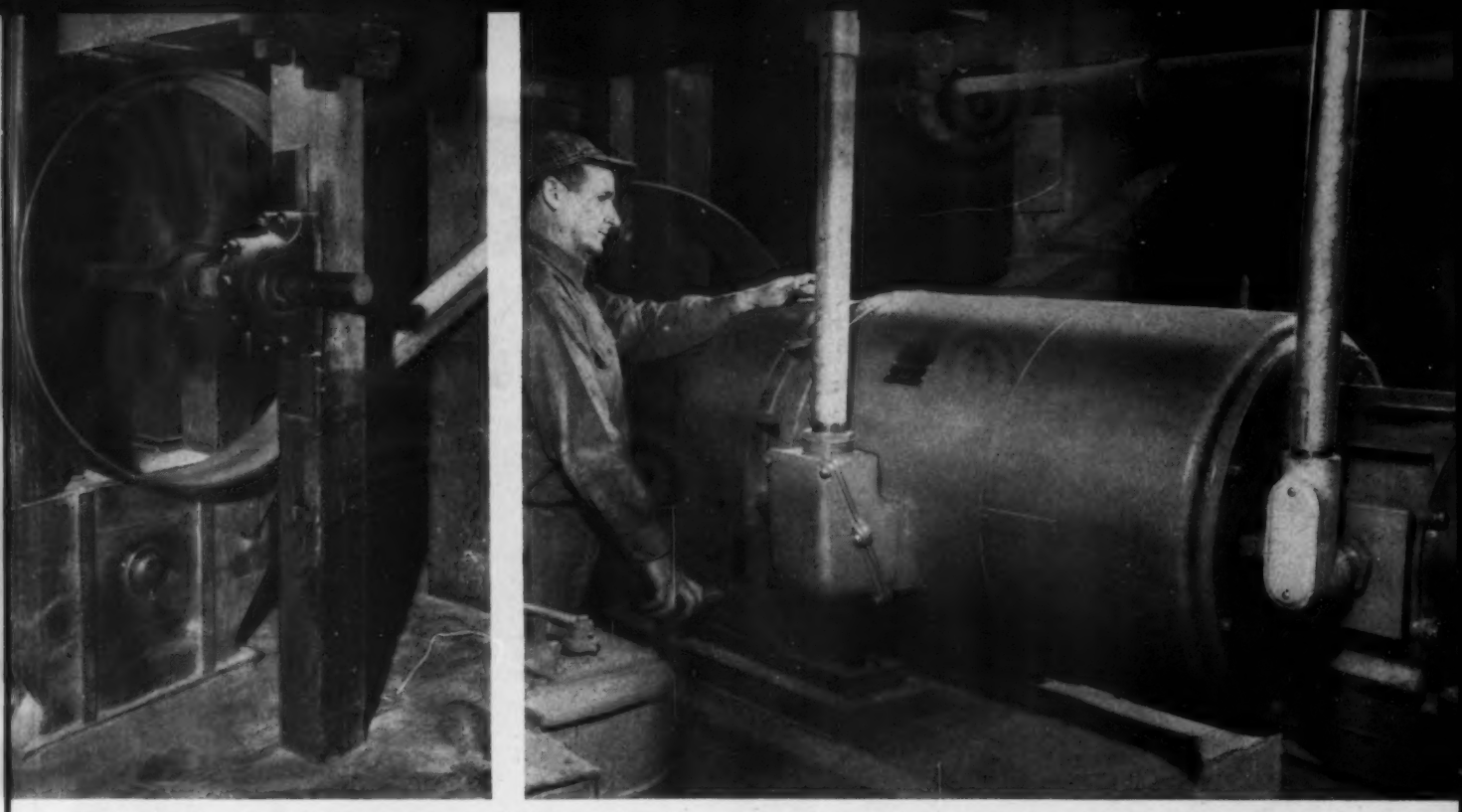


CUSHION . . . *all the way through*
TOUGH . . . *all the way through*

The leading manufacturers of industrial vehicles, both hand and powered, use Monarch Tires as original equipment. Replacements are available through distributors and manufacturers of your vehicles.

THE MONARCH RUBBER COMPANY
100 LINCOLN PARK • HARTVILLE, OHIO
DETROIT OFFICE, 7-255 GENERAL MOTORS BUILDING

SPECIALISTS IN INDUSTRIAL SOLID TIRES AND MOLDED MECHANICAL RUBBER GOODS



F. W. Stock & Sons needed a better drive on grinding machines in flour mill. Picture at left shows old drive when shaft was powered by belts from motors and speed reducers that also drove other lines. Instead of another motor and speed reducer for new drive, they switched to a 75-hp G-E gear-motor (right) to gain additional power, modern equipment, savings on initial costs.

Three More Plants Choose G-E Gear-motors

One reports output up 20% at "A" mill; Others compactness, low maintenance

A large, independent flour mill and two prominent machinery builders have been added to the long list of industries profitably using General Electric Gear-motors.

F. W. Stock & Sons, report a production increase of 20% in their "A" mill since a 75-hp G-E Gear-motor was installed to drive flour grinding machines.

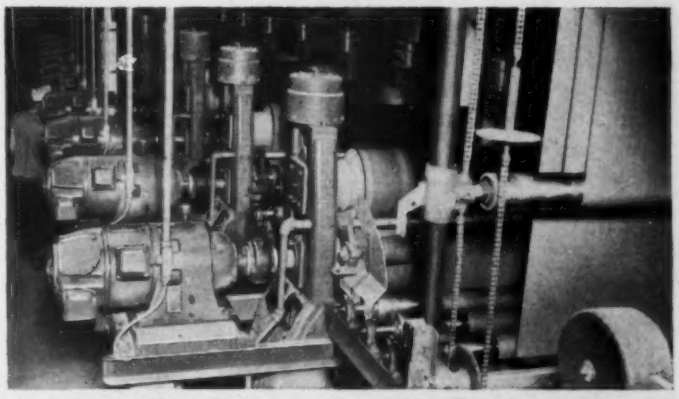
H. W. Butterworth & Sons, textile machinery manufacturer chooses G-E Gear-motors to drive machines requiring a reliable, compact low-speed drive.

F. X. Hooper Co., manufacturer of corrugated fibre box machinery, likes G-E Adjustable-speed Gear-motors because of their flexibility, trouble-free operation.

Throughout all industry, General Electric Gear-motors show "on the job" proof that they are best for most low-speed drives. And *prompt delivery* of Gear-motors is assured through warehouse stocks located in thirty-three key industrial areas. To solve your motor drive problems, contact your nearest G-E office or Distributor. *General Electric Co., Schenectady 5, N. Y.*

755-8

GENERAL ELECTRIC



Nine General Electric d-c gear-motors drive Butterworth soaper in Fruit of the Loom textile plant. G-E gear-motors also power agers, padders in this continuous-process finishing range.



G-E ACA adjustable-speed gear-motors now drive new F. X. Hooper partition slotters. The first installation of this modern equipment was made at a plant of the Owens-Illinois Glass Co. of California.



The audience walked out!

In the last few years, many people witnessed a miracle.

Once doomed to lives as invalids, they walked out into lives of usefulness and activity—by the miracle of the "wonder drugs!"

Wonderful as science's new drugs may be, one factor is still vital to their success. They must be used *in time* to be effective!

That's why, when shipping drugs, serums, and vaccines to all parts of the country, the orders call for the world's fastest shipping service—Air Express!

Air Express speed saves lives — and dollars, too. Whatever your business, you can profit from regular use of Air Express. Here's why:

IT'S FASTEST — Air Express gets *top priority* of all commercial shipping services — gives the fastest, most complete door-to-door pickup and delivery service in all cities and principal towns at *no extra cost.*

IT'S DEPENDABLE — Air Express provides one-carrier responsibility all the way and gets a *receipt upon delivery.*

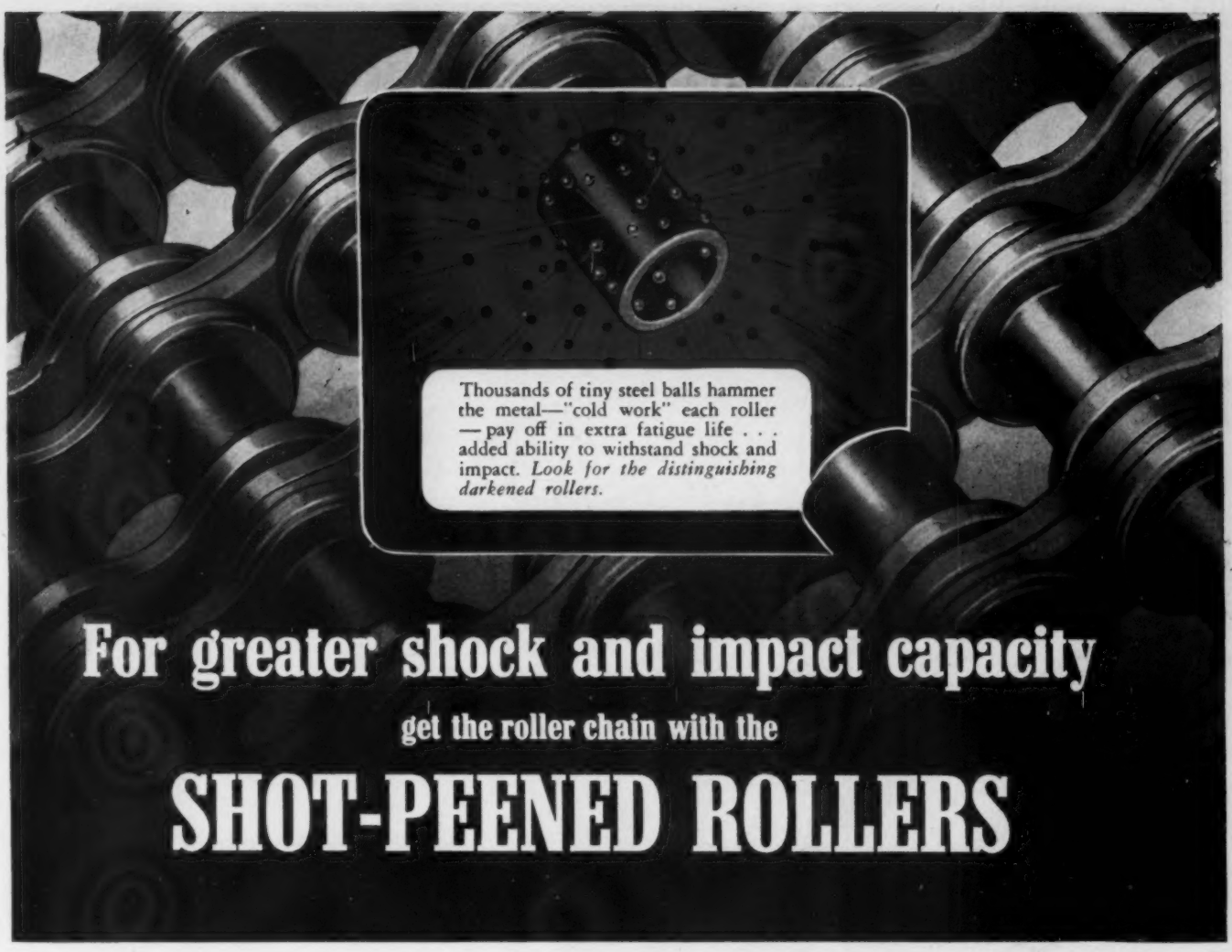
IT'S PROFITABLE—Air Express service costs less than you think, gives you many profit-making opportunities.

New parcel post regulations affect you? Call your local agent of Air Express Division, Railway Express Agency.



AIR EXPRESS

GETS THERE FIRST



For greater shock and impact capacity

get the roller chain with the

SHOT-PEENED ROLLERS

. . . one of the extra-wear features you get with every LINK-BELT Roller Chain

JUST as shot-peened rollers give you extra fatigue life—so do Link-Belt's exclusive lock-type bushings multiply roller chain's capacity to withstand shock loading. And there are many other engineering extras that make Link-Belt Precision Steel Roller Chain your best buy for drive and conveying service.

You can choose from the complete range of Link-Belt Precision Steel Roller Chain. Ask your nearest Link-Belt office for full particulars on single or multiple widths, in ⅜″ through 3″ single pitch, or double pitch, 1″ through 3″.

Lock-type Bushings increase ability to withstand severe operating conditions



No partial bearing here — bushing fits securely

A special manufacturing process securely locks the inside sidebars on the bushing, preventing lateral movement of the sidebars and eliminating a common cause of stiff chains. This Link-Belt development is applied on roller chains through 1″ pitch and double pitch roller chains through 2″ pitch. 12,696

LINK-BELT

PRECISION STEEL ROLLER CHAIN

LINK-BELT COMPANY: Chicago 9, Indianapolis 6, Philadelphia 40, Atlanta, Houston 1, Minneapolis 5, San Francisco 24, Los Angeles 33, Seattle 4, Toronto 8, Springs (South Africa), Sydney (Australia). Offices, factory branch stores and distributors in principal cities.

UNITED
SPECIAL MILLED PRODUCT



An extensive variety of all sizes of automatic screw machines and hand screw machines, coupled with many types of "second-operation" equipment, including heat treating and modern centerless grinding, and the know-how to meet your requirements—is your guarantee that "UNITED" is a good source for your special milled products, in all available metals.

—when you think of fasteners think of United

SCREWS · NUTS · WASHERS
CLUTCH HEAD SCREWS
STAMPINGS

United Screw and Bolt Corporation

Chicago 8 Cleveland 2 New York 7

PURCHASING PREVIEWS

A WASHINGTON REPORT FOR PURCHASING AGENTS

May 1, 1952.

ECONOMIC ADJUSTMENT ON THE WAY

Current lag in the economy is in many ways similar to that of 1949. Again the overall level of employment is high, and the areas of business distress are localized.

Much of the present uncertainty stems from a lack of confidence in the Government's administration of the mobilization program. Again as in 1949, consumers have been reluctant to buy goods, and lack of buying interest has reflected most drastically in soft goods. Savings are being accumulated, and there is talk that a basic economic adjustment is long overdue.

MOBILIZATION IS JUST GETTING STARTED

These developments are most startling, coming as they do when the defense mobilization has hardly started. The rate of Government spending for defense is just beginning to reach upper levels, and many of the plants which are being built to achieve mobilization strength will not be completed until the end of this year—with some completions scheduled for 1953.

Latest Department of Commerce survey shows that American business plans to spend 4% more for new plant and equipment this year than was spent last year. This amount will buy almost as much in physical volume terms.

The decision to stretch out the period of military buildup for several years should actually have brought greater stability to business because it means less distortion in the economy.

Instead the first impact of a cutback in immediate defense preparation goals heightened the doubts as to the future direction of the economy.

"BEFORE" AND "AFTER" MOBILIZATION POLICY

The suddenness of change in policy makes the whole performance of the Government's defense mobilization more startling.

Several months ago, there was constant and daily warning that structural steel was in critically short supply, and would remain so throughout the year. There was the warning that aluminum would continue to be in short supply, and that copper would be almost unobtainable for years to come.

There was strenuous effort within the National Production Authority to limit the number of new houses started this year to 500,000. There was a complete and total ban against commercial construction projects. There was talk that if a choice developed between defense needs and so-called non-essential industry, the latter would be sacrificed.

In complete contrast, the policy for the second quarter of this year has been announced as encouraging commercial construction. NPA officials indicate that the major deterrent to housing starts will be the lack of cheap and easy credit, rather than a shortage of materials.

The Government has been making "extra" distributions of carbon steel and of aluminum. The world price of copper has softened considerably.

ECONOMIC LAG SAID TO BE TEMPORARY

Government analysts maintain that these phenomena are temporary—that the era of deficit spending in the defense program has hardly begun.

There are warnings of inflationary dangers, especially in the constantly increasing structure of wages.

Some time this year—in the late summer or fall, defense industry is scheduled to operate at a much faster rate, and this will take much of the slack out of the economy.

The problem is one of spreading a high level of business activity evenly throughout the nation.

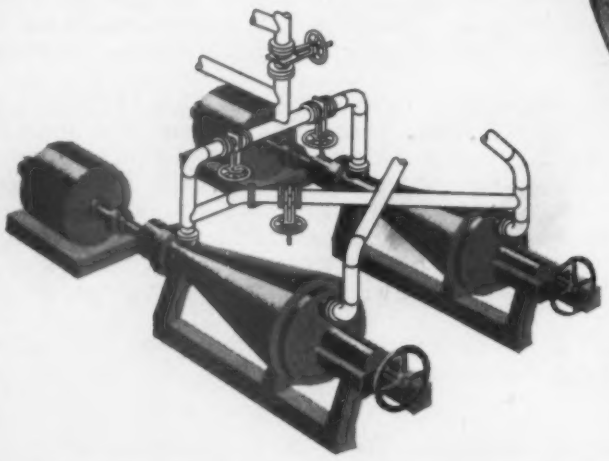
Best example of what can happen in a split economy is the employment trend in various manufacturing industries. The Department of Labor reports that in the leather and textile industries, February 1952 employment levels were even lower than in Febru-

this CRANE VALVE cured production delays

Here's another case where Crane valves stopped serious and costly interruptions of production. Better valve design did the trick. It's another factual demonstration of the greater dependability and lower ultimate cost of Crane valves, duplicated daily in thousands of plants in every industry.



Here are the Facts!



Where Installed: In a paper mill making strong and heavy papers for manufacture of bags. ***Fluid Handled:*** High consistency pulp stock being piped from pulpers to Jordan machines for refinement.

Trouble Encountered: Valves formerly used, even wide open, would entrap the pulp stock, become inoperative, and shut off flow to machines. Cleaning out the clogged valves and pipe lines was costly in time, labor, and production loss.

Solution and Result: Crane patented Pulp Stock Valves were installed. Clogging was immediately stopped. Not a single shutdown for cleanout needed for more than 5 years since Crane valves were installed.

More CRANE VALVES are used than any other make

CRANE CO. General Offices: 836 S. Michigan Ave., Chicago 5, Branches and Wholesalers Serving All Industrial Areas

VALVES • FITTINGS • PIPE • PLUMBING • HEATING

ary 1939, while total factory employment showed a gain of over 60% during this period.

While new technological developments have contributed to the contrasts in textiles and leather, there is no denying the slump in soft goods sales.

CONTROLS TO BE EASIER

In terms of controls, the change in outlook means an overall relaxing of Government regulation of materials use.

True, some forms of steel, nickel and copper will continue to be in short supply for some time to come. Large expansions of aluminum producing capacity will not become operative until the latter part of this year. In general, however, materials which will be subject to rigid control will be fewer during the last half of this year.

Consideration is also being given to replacing the Controlled Materials Plan with a simple priorities system which would merely give military orders a top priority on materials needed for defense production.

900 PLANES A MONTH

The slackening off in defense production comes at a time when military aircraft output for the Air Force has reached over one-third of the scheduled peak rate.

As presently planned, the Air Force will get about 900 planes a month peak rate in 1953, and this level of production will be maintained for several years.

Major advantage of the moderated schedule of aircraft production is that greater emphasis will be placed on the design and development of new and more advanced military aircraft. Instead of freezing designs and achieving mass production of current models, the aircraft industry will develop a number of new models and types of aircraft, and work on the improvement of these types.

EXPLANATIONS OF POLICY CHANGE VARY

There has been no official explanation of the wide swing in policy cutting back on defense mobilization. The abrupt change was not stimulated by a sudden improvement in the outlook for peace.

Furthermore, even the most conservative estimates show that Soviet production of military aircraft exceeds either our current rate or a peak rate projected for 1953.

Also, while there is some difference of opinion as to the combat quality of the Russian MIG-15 and the U. S. Sabre-jet, it is no secret that the MIG was a much better fighter plane than we anticipated.

There was some talk that the rate of defense mobilization which was projected prior to the cutback would have placed too great a burden on the economy—that we might have won the arms race, but that we might wreck our economic structure in the process.

This explanation is highly specious, as the economy has remained on a much sounder basis than was anticipated.

Six to eight months ago, Government spokesmen maintained that inflation was inevitable, especially if the Capehart amendment was enacted into the price control law. Following its enactment, prices leveled off and finally subsided.

Current actions of the Wage Stabilization Board have injected a new note of inflation into the wage structure—totally unrelated, however, to the Capehart Amendment.

POLITICS AS A FACTOR

It is an over-simplification to ascribe the whole policy change to political decision. It is true nevertheless that the acceleration of defense production at the expense of commercial construction and at the expense of such civilian manufacture as costume jewelry, sporting goods, household accessories, automotive and home construction, had its greatest impact on heavily populated centers in New York City, Detroit, Providence, etc.

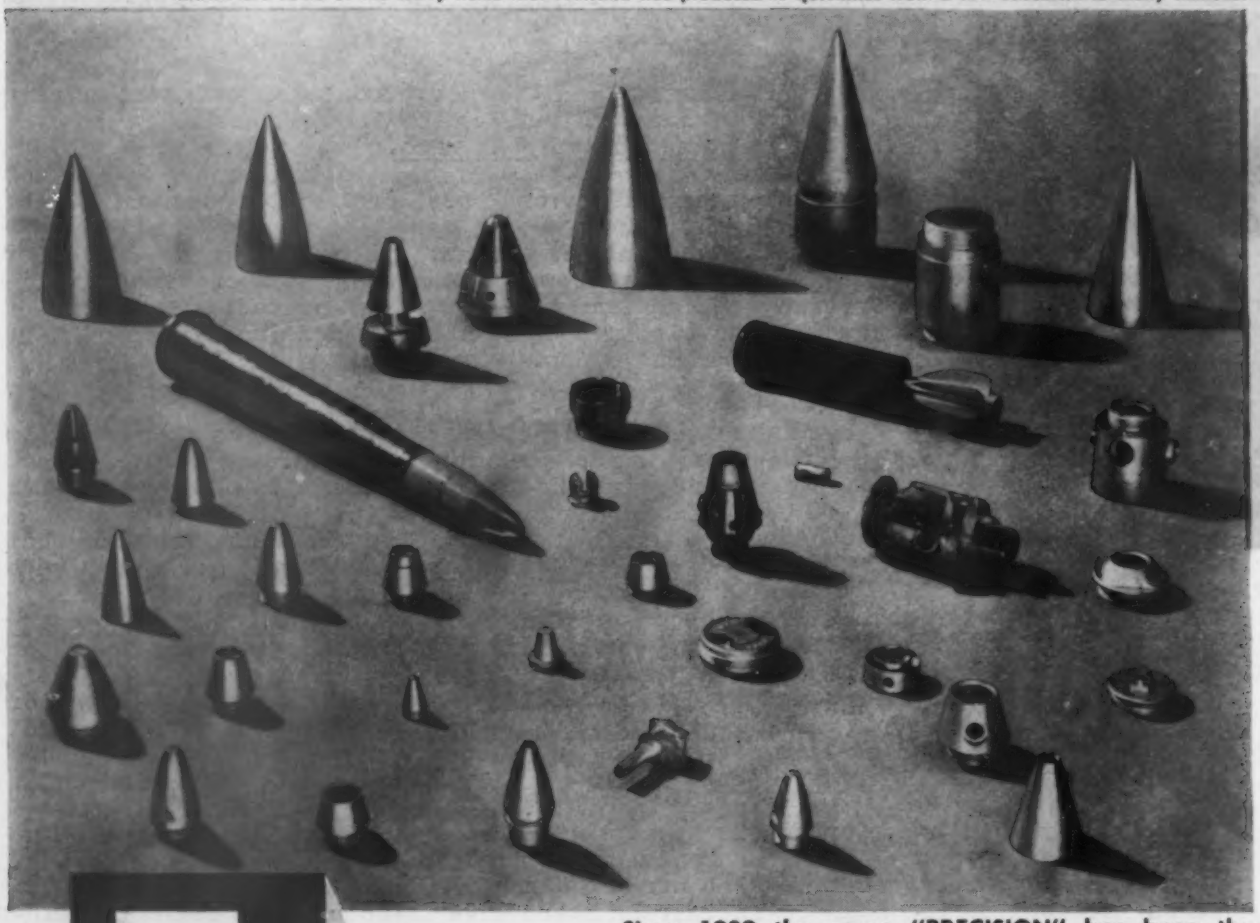
These centers, in addition to being the hubs of industrial activity for their areas, are important segments of the electorate—and while there is no way currently of measuring the risk entailed in slowing down our armament pace, the political and economic risk of business distress in such areas was a determining factor in the change of mobilization policy.

In Defense, War or Peace--

You Can Depend on PRECISION DIE CASTINGS!

In defense and civil production, there is increasing need for lighter, stronger, accurate products and components at lower cost. The answer is *Precision Die Castings*—durable, dependable, designed to solve *your* production problems by the foremost engineering skill in the die casting industry.

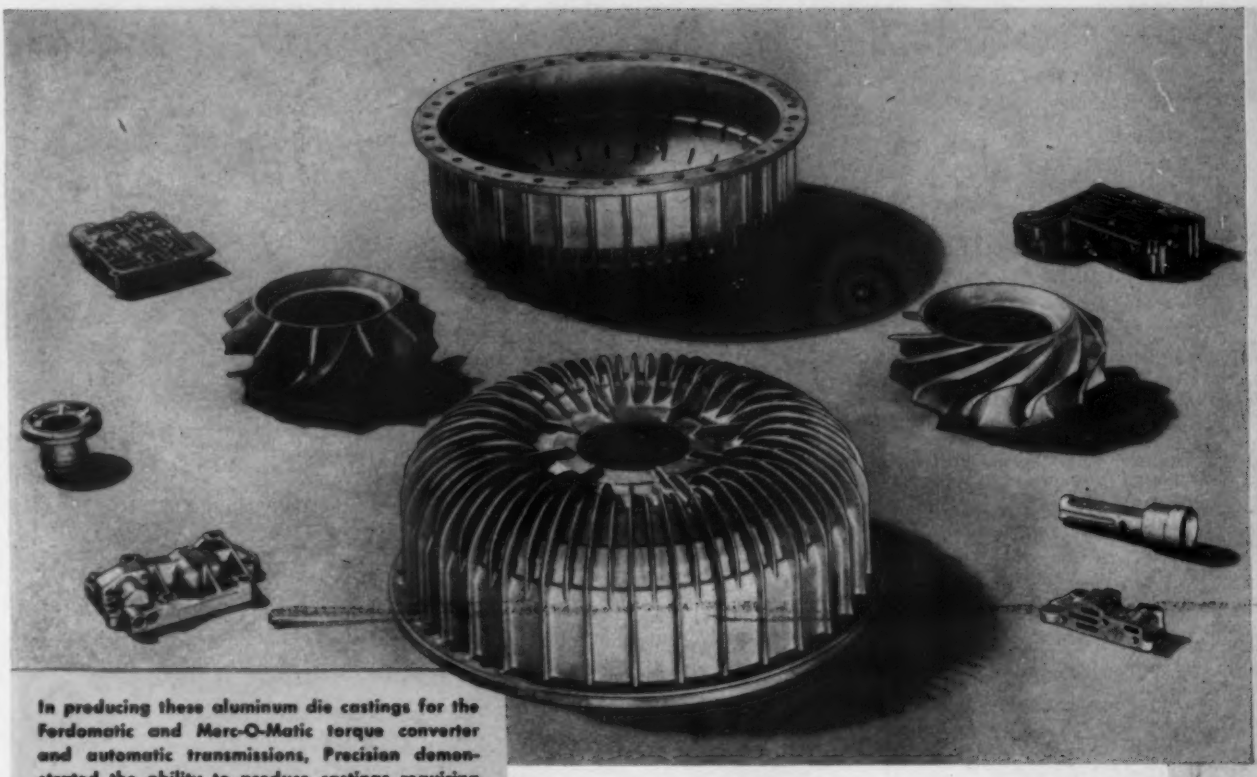
We can offer you experience and production know-how in producing hundreds of different items essential to defense. Shown are some of the many items that Precision has produced in quantities from a few thousand to many millions.



Since 1909 the name "PRECISION" has been the symbol of highest quality in the die casting industry.

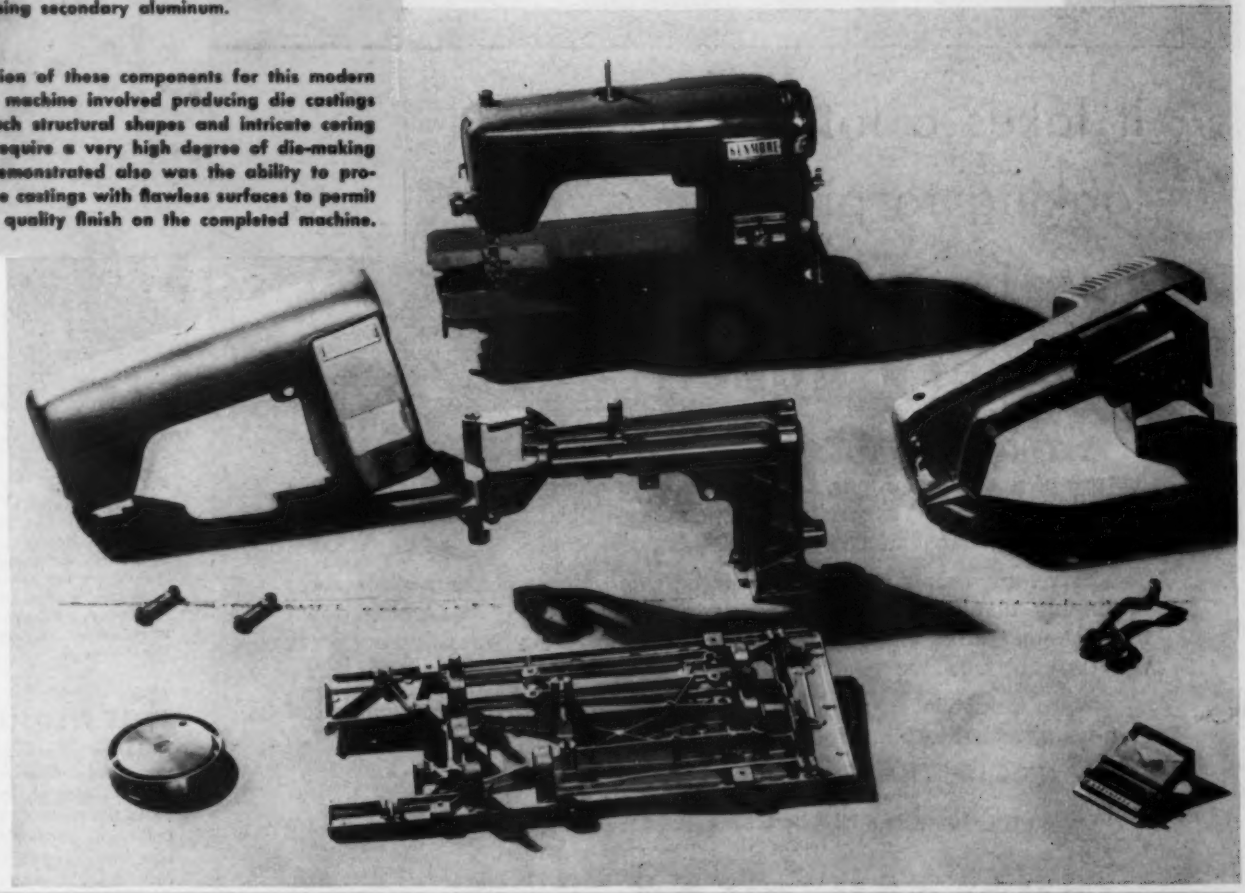
PRECISION CASTINGS CO., Inc.
212 Walnut St., Fayetteville, N. Y.
Syracuse, N. Y. · Cleveland, O. · Kalamazoo, Mich. · Chicago, Ill.
British Affiliation — Wolverhampton Die Casting Co., Wolverhampton, England

Call a **PRECISION** *Engineer Today*



In producing these aluminum die castings for the Fordomatic and Merc-O-Matic torque converter and automatic transmissions, Precision demonstrated the ability to produce castings requiring highly complicated coring methods. Customer was assured of an unfailing supply of castings through Precision's pioneer development of a high strength alloy to ASTM and SAE specifications using secondary aluminum.

Production of these components for this modern sewing machine involved producing die castings with such structural shapes and intricate coring as to require a very high degree of die-making skill. Demonstrated also was the ability to produce die castings with flawless surfaces to permit a high quality finish on the completed machine.



. . . put your problem to PRECISION and get the answer!



It takes a lot of sharp-eyed looking to produce

*Twelve perfect files in every dozen**



YES, there are a lot of little things that loom up big in the manufacture of good files. Along every stage of production Nicholson stations the watchful eyes of experienced inspectors pledged to maintain the high Nicholson standards in every detail.

From microscopic inspection of the steel, through the various steps of shaping, blank-smoothing, teeth-cutting, straightening, hardening, down to finishing, testing and packaging, there is no relaxing toward giving users UNIFORM TOP-QUALITY FILE PERFORMANCE and MAXIMUM FILE LIFE.

What industrial management should not be impressed—and benefited—in using tools like these?

SOLD THROUGH INDUSTRIAL DISTRIBUTORS

NICHOLSON FILE CO. • 28 Acorn St., Providence 1, R. I.
(In Canada, Port Hope, Ont.)

NICHOLSON FILES FOR EVERY PURPOSE

A "perfect" file is one which in practical use does the best job that is possible through being precisely straight, carefully balanced, accurately cut (teeth evenly high and sharp), uniformly hardened, and made of the finest steel obtainable for the purpose.

"FILE FILOSOPHY,"

Nicholson's famous 48-page illustrated handbook on kinds, use and care of files, should be in the possession of every industrial purchasing agent and shop superintendent. *How many copies (free) do you need?*

Modernize

YOUR CATALOG AND BULLETIN FILES

Bring Your Source Information Up-to-Date on New and Improved Equipment, Products and Materials. This is the first of — FOUR Pages Listing the Latest Trade Literature! Check All Four — 19, 21, 22 and 24.

Electric Power Drives For All Requirements

1. WELL-ILLUSTRATED 20-page catalog of electric power drives contains complete descriptive information on variable speed drives, geared motors and constant normal speed motors in drip-proof, splash-proof, totally enclosed and pipe ventilated designs. Sterling Electric Motors, Inc.

Welding Torch

2. TEN good reasons for choosing its welding torch are outlined, with illustrations, in a new booklet prepared by National Welding Equipment Co. Among the advantages listed: cone end sealing rings; fingertip control of the tip; better gas velocity control; superior needle valve; safety to operator's hand; stronger, faster and safer cutting attachment. Directions for easy ordering are included.

Plastic Paint With Outstanding Properties

3. A PROTECTIVE plastic paint that "protects where ordinary coatings will fail" is the subject. The paint is chemically resistant, seals out moisture, retards fire, and dries to an odorless, tasteless film. A tough, hard, durable coating, it is said to resist abrasion and erosion and to take rough handling—standing up well under daily brushing, scrubbing and even steam cleaning. Among industries that should be interested—chemical process, railroads, public utilities, food and dairy industries, etc. The Corrosite Corporation.

Leather Belting For More Production-Power

4. A VALUABLE book for every belt user is a new catalog and reference manual for the selection and application of power transmission belting. It not only lists types and grades best adapted to each individual drive, but shows how to get longer life from belting through proper care, how to make a belt endless, etc. It contains a wealth of technical data, and sizes, specifications, and prices. Graton & Knight Company.

Strong, Accurate-Thread Drop-Forged Pipe Flanges

5. NEW standards for strength and thread accuracy are said to have been set in the drop-forged pipe flanges illustrated and described in a 32-page catalog. Both A.S.A. standard flanges and other types for special purposes are available for prompt shipment in small quantities or carload lots. Complete technical data is given. Harrisburg Steel Corp.

Meehanite Pump Castings Resist Wear, Corrosion, etc.

6. BULLETIN 36 contains complete information on Meehanite pump castings. Numerous photographs of pump castings and the various types of pumps that utilize the castings are included and there are several tables and charts illustrating property evaluations made from recent tests covering wear, resistance to acid corrosion, impact etc. Meehanite Metal Corporation.

Tiny Zinc Alloy Die Castings

7. TINY zinc alloy die castings—with "smallness unlimited"—may offer you big opportunities for new

(*Please turn to page* 21)

READER SERVICE COUPON MAY, 1952

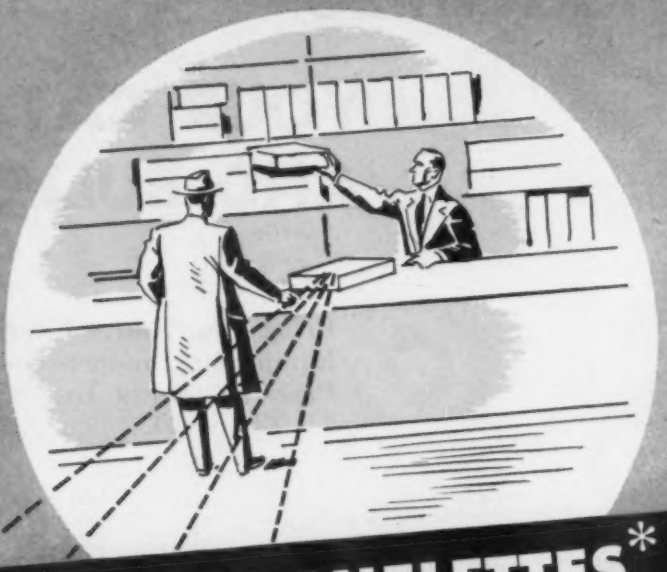
MAIL TO:
PURCHASING—Reader Service Dept.
205 East 42 Street
New York 17, New York

Circle the numbers of the trade literature items you want.

1	2	3	4	5	6	7	8	9	10	11	12	13
14	15	16	17	18	19	20	21	22	23	24	25	26
27	28	29	30	31	32	33	34	35	36	37	38	39
40	41	42										

Name..... Title.....
Company.....
Street Address .....
City..... Zone..... State.....

Off-the-Shelf DELIVERY!



SQUARE D "PLUG-IN" PANELETTES* FOR *LIGHTING AND POWER* SYSTEMS



• Trims and boxes separately packaged. Flush or surface type. Flush lock—directory frame—ample knockouts.



• "Plug-in" thermal-magnetic circuit breakers—individual cartons. 15 to 100 ampere ratings available.



• Interiors with cylindrical bus bars and neutral plate.



NMO

• "Plug-in" lighting panelettes for 2 to 40 circuits—lugs or circuit breaker mains. 15 to 50 ampere 120/240 volt A.C. circuit breaker branches.

MHP

• "Plug-in" distribution panelettes for 240 volt, 3 phase, 3 or 4 wire A.C. systems. 15 to 100 ampere breaker units, power or lighting applications.

TIME SAVERS—varying job requirements can be met by using different combinations of standardized components—immediately available from Electrical Distributor stock.

MONEY SAVERS—moderate initial cost. "Plug-in" design reduces installation cost substantially.

LESS MAINTENANCE—sturdy, simplified design and construction. Positive-pressure contact jaws. Fewer bolted connections.

**a PANELETTE is an Underwriters' approved panelboard, packaged in component form for flexibility in stocking and "off-the-shelf" delivery.*

ASK YOUR ELECTRICAL DISTRIBUTOR FOR SQUARE D PRODUCTS

SQUARE D COMPANY

DETROIT • MILWAUKEE • LOS ANGELES

SQUARE D COMPANY CANADA LTD., TORONTO • SQUARE D de MEXICO, S.A., MEXICO CITY, D.F.

(*Continued from page 19*)

designs, new products, substantial savings. Detailed data on their properties, advantages and improved uses is offered in an 8-page illustrated booklet. Included is a chart comparing relative cost, production and design features of various fabricating methods, and a chart listing composition and properties of zinc alloys. Gries Reproducer Corp.

Axial Flow Positive Displacement Blower

8. THE Standardaire blower—called the first major blower improvement since positive displacement blowers were introduced almost 80 years ago—is thoroughly covered in Publication No. 90. Research and development on the blower, design and operating features, advantages and general specifications are discussed in detail. Read Standard Corp. (formerly The Standard Stoker Co., Inc.)

Industrial Work Gloves

9. CATALOG No. 52 gives description, features, packing, and shipping weight on 45 types of Bee Brand industrial work gloves. All leather, leather palm, canton flannel, and Jersey gloves are highlighted. Of special interest is a leather palm glove selector. Richmond Glove Corporation.

Centrifugal Pumps

10. TWO booklets cover installation, operation and repair of Allis-Chalmers single-stage, single-suction and multi-stage centrifugal pumps. They include a description of such late developments as Magic-Grip couplings, universal joint couplings with Magic-Grip bushings, mechanical seals, etc. Section drawings are large for easy reference. Allis-Chalmers Manufacturing Co.

Selection and Care of Industrial Tires

11. SOUND information on how to care for and how to buy industrial solid and cushion tires for the numerous materials handling applications that exist in modern plants are contained in a new catalog and handbook. A large portion of the publication is devoted to equipment

LATEST TRADE LITERATURE
Check Over All Four Pages!
19, 21, 22 and 24
Check Coupon on page 19

manufacturers' specification. Clear and concise manner of presentation simplifies ordering of replacement tires. The Monarch Rubber Co.

Non-Fraying Buffs and Polishing Wheels

12. CATALOG No. 52 details various types of Non-Fray buffs and polishing wheels. Bias edge construction of the buff prevents fraying of the cloth when it comes in contact with the work, greatly lengthening its life. Special ventilation design overcomes the problem of heat. F. L. & J. C. Codman Company.

Effective Metal Cleaning

13. IF your operations require cleaning of metal prior to electroplating, anodizing, painting or other wise applying decorative or protective coatings, a new bulletin "Cleaners for Effective Metal Cleaning" will help you. It defines six different methods of metal cleaning and lists which cleaners to use on various metals and alloys. Sections on soak cleaners, spray washing machine cleaners, and specific purpose cleaners, electrocleaners are included. The Hanson-Van Winkle-Munning Co.

Better Lighting Promotes Improved Production

14. "SEE Better-Work Better" Bulletins Nos. 6 and 7, are the latest issues of a series of publications dedicated to promoting better lighting, thus improved production, in the nation's industrial mobilization program. How to reduce costs and get more for your lighting dollar by a simplified replacement and maintenance plan is fully outlined. Lamp Division, General Electric Co.

3-Dimensional Microscopes For Industrial Purposes

15. INDUSTRY is rapidly finding more and more application for Stereomicroscopes — three dimensional microscopes—as aids for quality control. An informative 20-page brochure cites the many uses of the Series 14 Models, whose three dimensional feature provides a magnified image which is both stereoscopic and unreversed. The units are said to promote quicker and more efficient handling of many small part assembly operations, such as bearings, watches, etc. Bausch & Lomb Optical Co.

Better Plant Daylighting By Use of Glass Blocks

16. HOW to achieve better daylighting conditions in industrial plants through the use of light-directing prismatic glass block is described in a new booklet, "Daylight for Industry." Based on research and experiments and on practical experience in hundreds of industrial buildings and schools, the booklet presents a non-technical explanation of the function and advantages of controlled daylight for plant, factory and office. American Structural Products Co.

What to Look For When Washing Metal By Machine

17. EIGHT important points that must be considered when you wash metal by machine are discussed one by one in a new 16-page booklet. Specific materials designed for use in metal washing machines are described, and the jobs they perform are reviewed. Helpful suggestions on the selection and operation of metal-washing equipment are included. Oakite Products, Inc.

Use of Wire Construction In Product Design

18. ROUND and flattened steel wire can be used in a surprisingly large number of metal products—and it is readily obtainable. A comprehensive guide containing detailed information and engineering data on the use of wire fabrication is contained in a new 16-page illustrated booklet. Substitution of wire parts to get the same utility at lower cost is covered. E. H. Titchener & Company.

(*Please turn to page 22*)

(Continued from page 21)

Conservation of Aluminum

19. REPRINTS of various articles on the conservation of aluminum are contained in a new booklet offered by the Aluminum Association. The booklet contains material on efficient use of available supplies of the strategic lightweight material, as well as proper handling of scrap. The Aluminum Association.

Special Purpose Steel Plate

20. MORE than fifteen different special purpose steels, their physical properties, methods of heat treating, machining, welding, etc., are listed in an 8-page booklet. Each section has illustrations of suggested as well as actual applications. Besides abrasion resistant and high tensile plate steels, ground plate, flange and firebox steels, floor plates, gratings and perforated plates are detailed. W. J. Holliday & Co., Inc.

Double-Worm and Helical-Worm Gear Speed Reducers

21. NEW 48-page bulletin describes line of double-worm and helical-worm gear speed reducers. Complete data on hp, output torque, and center distance for reductions up to 6400:1 is included. You also get detailed information on how to select double reduction gearing, examples of selection, hp rating tables, dimension sheets and physical data. De Laval Steam Turbine Co.

Hand and Power Pipe Tools And How to Operate Them

22. A NEW catalog and data book gives pertinent information on three pipe and bolt machines, power units, ratchet threaders, reamers, cutters and other pipe tools, in hand and power classifications. It includes a 4-page "operating guide", fully illustrated with easy-to-grasp drawings, telling how to locate and correct pipe tool troubles, and clarifying 31 different operations. Beaver Pipe Tools, Inc.

Aircraft Cable, Terminals and Accessories

23. REVISED catalog of aircraft cable, terminals and assemblies includes complete specifications (conforming with the latest military) for "Hi-Fatigue" control cables for all types of aircraft. "Safe-Lock" and "Socketype Terminals" are cataloged in conformance with government standards. Tie rods and terminals are also described and illustrated. Macwhyte Co.

LATEST TRADE LITERATURE
Check Over All Four Pages!
19, 21, 22 and 24
Check Coupon on page 19

Ready-to-Use Flexible Shaft Unit Drives

24. A NEW line of ready-to-use Econoflex flexible shaft unit drives in four size ranges—heavy, medium and light duty, and drill shaft unit—is described and illustrated in Catalog No. 210. Complete specifications, accessories, etc. are included. Special units can be engineered to meet most exacting needs, company states. Elliott Manufacturing Co.

Automatic, Bin-Level Control Switches

25. BULLETIN 11-0 covers the complete line of "Tellevel" automatic, bin-level control switches. These explosion proof units are made in three styles for normal duty and heavy duty for use in hazardous areas where explosive vapors and dust occur. As the material level rises or falls, the units will stop or start feed conveyors or elevators. They also operate warning lights or horns. No lubrication or other maintenance is required. Stephens-Adamson Mfg. Co.

Gage Blocks Feature "Precision in Millionths"

26. "PRECISION in Millionths" is said to be inherent in the line of Lifetime-carbide and steel gage blocks described and illustrated in a new catalog. Their sustained dimensional accuracy, flatness and parallelism exceed the specifications of the U. S. Bureau of Standards. Wringability of the carbide gage block, when perfectly clean, is many times greater than that of any other block, regardless of material, maker states. The Fonda Gage Company, Inc.

Fluid Power Circuits

27. YOU'LL get a down-to-earth explanation of representative types of fluid power circuits, and a discussion of the many possibilities the different types afford in a new 32-page manual. The pocket-size book, entitled "The Circuit Rider" presents a discussion of basic designs in fluid power circuits, and their ramifications. Complete, clear-cut drawings accompany each explanation. Logansport Machine Co., Inc.

Unitized Low-Voltage Metal-Enclosed Switchgear

28. WANT to know what "unitized" low-voltage metal-enclosed switchgear is and what it can do for you? 30-page illustrated booklet, B-5282, explains it and outlines the applications, indoor and outdoor, for which it is suited. Types DB and DA drawout De-Ion air circuit breakers, the heart of "unitized" switchgear are completely described. Current ratings, interrupting ratings, and inspection, disconnection, and replacement data are included. Westinghouse Electric Corp.

Air-Operated Automatic Combustion Control

29. DETAILED information on automatic combustion control techniques for oil and gas fired boilers is available in Bulletin No. 1023, 24 pages. Comprehensive illustrations and descriptions include diagrammatics showing nine typical firing methods and 16 major control equipment components. There are also individual facts and figures on 300 installations throughout the country, ranging from 6000 to 1,000,000 lbs./hr. capacity. Bailey Meter Co.

Materials Handling Items From Cranes to Clips

30. EQUIPMENT of all kinds for handling material—from giant revolver cranes through locomotive cranes, hoists, material elevators, car pullers, right down to wire rope

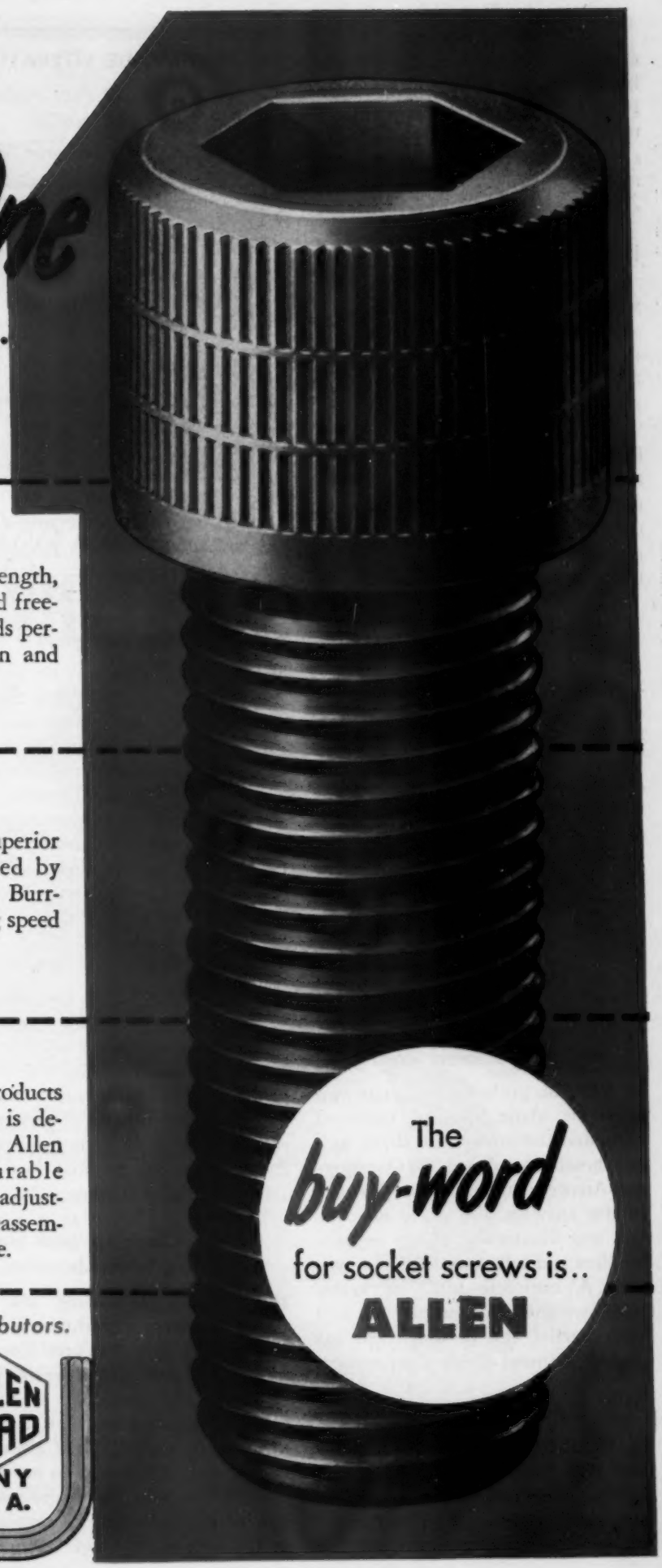
(Continued on page 24)

The

Number One

name in socket screws..

ALLEN



with design engineers...

No. 1 because Allen's greater strength, greater holding power and freedom from projecting heads permit more compact design and smooth, safe surfaces.

on the production line...

No. 1 because Allen○Heads' superior uniformity is maintained by statistical chart control. Burr-free threading and keying speed assembly time.

with the end user...

No. 1 because Allen○Screw products identify equipment that is designed right, built right. Allen screws, with more durable threads and sockets make adjustments, disassembly and reassembly easy and trouble-free.

The *buy-word* for socket screws is.. **ALLEN**

. . . Sold only through leading distributors.

ALLEN ALLEN HEAD

MANUFACTURING COMPANY

Hartford 2, Connecticut, U. S. A.

(*Continued from page 22*)

clips—is described and illustrated in an attractive new general catalog. Plenty of actual on-the-job pictures makes the book "practically a guided tour" of material handling installations throughout the world. American Hoist and Derrick Co.

Fundamentals of Instrumentation For the Industries

31. THERE are few industrial purchasing departments that will want to be without a new 126-page booklet, 80-2, entitled "Fundamentals of Instrumentation for the Industries." This comprehensive, generously illustrated booklet covers the fundamentals of measurement, control and transmission of variables encountered in industry. Typical applications are also discussed. Minneapolis-Honeywell Regulator Co.

High-Precision Hole Sizing and Finishing

32. THE ballizing process for high-speed, high-precision hole sizing and finishing is described in a new bulletin. The process — sometimes known as ball broaching, or balling, consists of pressing a precision ball of suitable size and hardness through the unfinished hole. Hole size is readily held to plus or minus .0002", and the burnished surface produced is practically free of roughness and fine waviness irregularities. Industrial Tectonics, Inc.

20 Questions and Answers on Mineral Insulated Wiring

33. YOU'LL probably find your own questions about mineral insulated wire, and the answers to them, in a new brochure entitled "20 Questions and Answers on Safety-m.i. Wiring." In the answers you get a description and illustration of the characteristics and advantages of the system. A complete table of types, sizes, weights and lengths as well as a partial list of users are included. General Cable Corporation.

Lighting Panelboards

34. BULLETIN 513 discusses P2B and P3B Pushmatic Electri-Center lighting panelboards. These units are available right off distributors' shelves—each component part is taken from the shelf, providing immediate delivery. The bulletin is profusely illustrated to emphasize the important features of the units. BullDog Electric Products Co.

LATEST TRADE LITERATURE

Check Over All Four Pages!
19, 21, 22 and 24

Check Coupon on page 19

Permanent-Magnet Tools

35. CATALOG piece M-30 presents illustrations, specifications and price of sixteen standard, hand-operated permanent, magnet tools. Tools include those for handling, salvaging, sorting, separating, detecting, cleaning, extracting, holding, safety, metal - conservation, etc. Magnetool Divn., Multifinish Mfg. Co.

Power Sweepers

36. Sweeping costs can be reduced by as much as 75% with the use of power sweepers described and illustrated in Bulletin S-101, manufacturer states. Industrial, commercial and municipal models are shown. Comparative operating data is given on each sweeper as a guide to selecting correct model and size for specific requirements. Wilshire Power Sweeper Co.

Large Vertical Induction Motors

37. CONSTRUCTION features and types of Allis-Chalmers large vertical induction motors widely used for pumps and other vertical drives are described in a new bulletin, 05B7629. The bulletin covers motor ratings is 40 C, 60 cycle from 60 hp, 200 rpm to 800 hp and larger at 1800 rpm. Allis-Chalmers Mfg. Co.

Impact Cleaning and Shot Peening With Abrasives

38. EIGHT-page catalog No. 152 covers abrasive materials including chilled iron shot and grit, Normalized shot and grit, drawn steel cleaning and peening shot and powder. All shot and grit is made in a number of different sizes and special sizes are available on order. Uses, advantages and proper selection of abrasives is fully explained in the catalog, entitled "20th Century The Persuasive Abrasive." Cleveland Metal Abrasive Co.

Self-Sticking Pipe Markers, Safety Signs, Stencils, etc.

39. FIFTY-page catalog covers a full line of self-sticking industrial products—wire markers, pipe markers, safety signs, "Scotchlite" reflective signs, masks and stencils, and printed roll tape. Illustrations, specifications, and numerous job applications are offered so show how the items reduce cost, save time, and speed production. Prices are also included. W. H. Brady Company.

Standard Sizes of Socket Screws

40. UNBRAKO "Standards" is the title of a 12-page bulletin covering standard sizes available in socket head cap screws, self-locking socket set screws (with knurled cup point), socket set screws (standard points), shoulder screws, flat head socket cap screws, Dryseal-thread pressure plugs, square head set screws, precision-ground dowel pins and hexagon socket screw keys. Standard Pressed Steel Co.

Corrosion-Resistant Plastic Paint

41. BULLETIN 201 describes the characteristics, applications, and methods of use of the tough, corrosion resistant protective plastic paint made by The Corrosite Corporation. The paint protects against chemical attack, abrasive action, marine atmospheres, salt water corrosion, tropical climates, etc. It can be applied to metal, concrete, brick, stone, plaster and asbestos board.

Quick and Accurate Selection Of Standard V-Drives

42. V-DRIVE selections can be made quickly and accurately with Engineering Guide 50-A. Simple formulas for standard quarter-turn and V-flat drives are augmented by tables of drives in all belt sections, compiled for quick selection based on required ratio and speed. The bulletin also contains engineering information on other types of V-belt drives. Fort Worth Steel & Machinery Co.



You had a hand in

MACWHYTE WIRE ROPE

A thousand and one wire ropes

PREformed and internally lubricated

The experience of hundreds of users—like yourself—goes into the making of Macwhyte Wire Rope. For more than half a century, their needs and yours have been studied by our engineers to produce the best wire rope for each job.

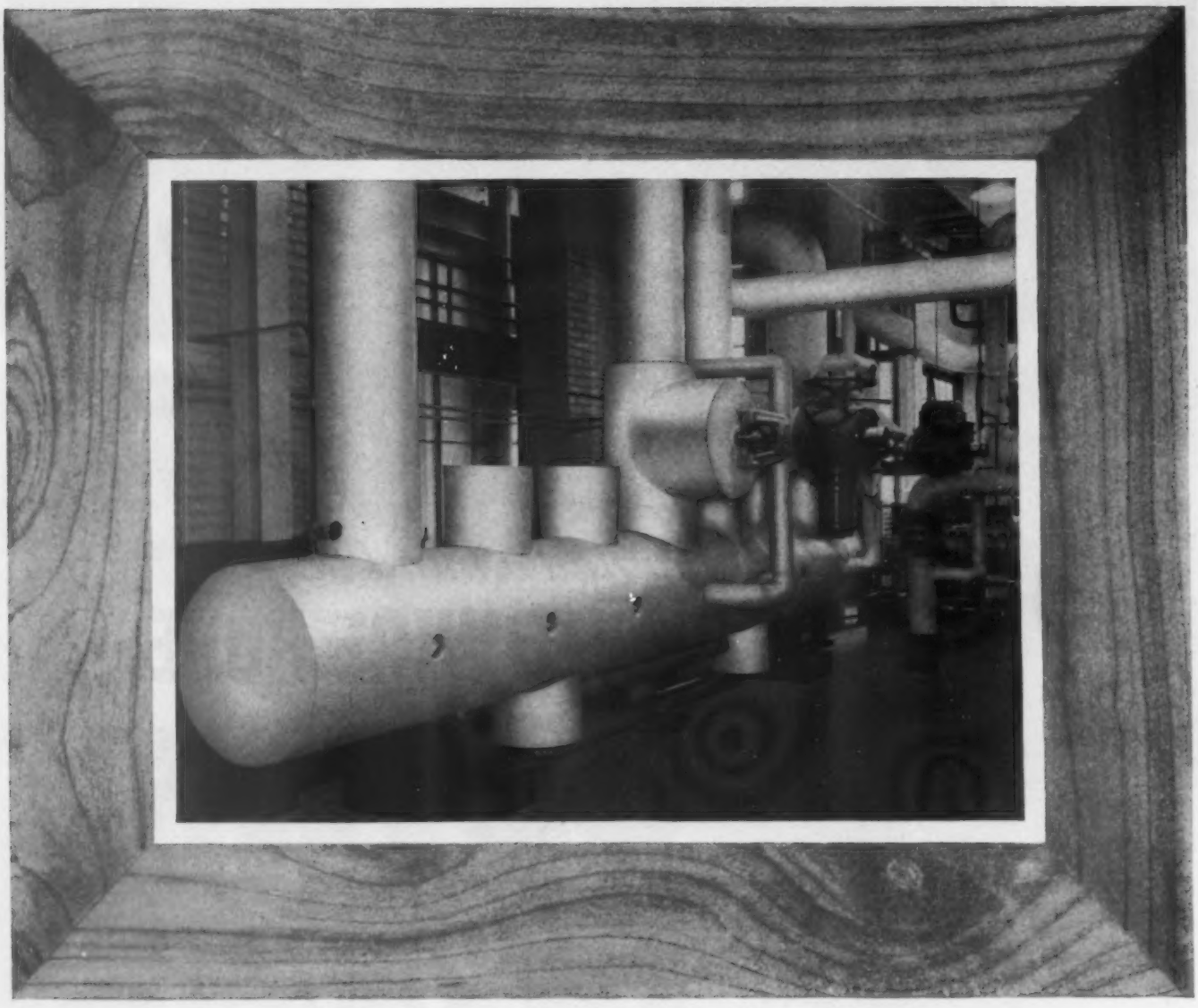
There are a thousand and one ropes to choose from. Recommendations are promptly available from Macwhyte distributors or Macwhyte Company.

Macwhyte Company, 2918 Fourteenth Avenue, Kenosha, Wis. Manufacturers of Internally Lubricated PREformed Wire Rope, Braided Wire Rope Slings, Aircraft Cables and Assemblies, Monel Metal, Stainless Steel Wire Rope and Wire Rope Assemblies. Mill depots: New York • Pittsburgh • Chicago • Minneapolis • Fort Worth • Portland • Seattle • San Francisco • Los Angeles • Distributors throughout U.S.A.



Catalogs are available on request

9017



Insulation Contractor: Guy M. Beaty & Co., Charlotte, N.C.

Steam header at Cannon Mills Co., Kannapolis, N.C., insulated with K&M Hy-Temp and "Featherweight" 85% Magnesia Combination, finished with sewed canvas jacket.

PORTRAIT OF STEAM HEADER AT 750° F.

clothed for life . . . . with K&M Insulations

YOU SEE here one of the most efficient combinations you can get today for lifetime protection against heat loss—K&M Hy-Temp Insulation teamed up with "Featherweight" 85% Magnesia.

You can use the same combination, in appropriate thicknesses, for efficient insulation of temperatures from 600° F. up to 1900° F.

K&M Hy-Temp Insulation is applied directly to the high temperature surface in sufficient thickness to lower the temperature of the outer surface of the insulation to 600° F. or less. "Featherweight" 85% Magnesia, which has a higher insulating value, is then applied directly over the Hy-Temp Insulation, thus utilizing the advantages of both insulations to the fullest extent.

These insulations are supplied in appropriate forms and thicknesses for application to equipment surfaces and piping.

Your local K&M distributor, who is an experienced applicator, will give you full information. Or write us direct . . . we'll rush a reply.

Nature made Asbestos . . .

Keasbey & Mattison has made it serve mankind since 1873

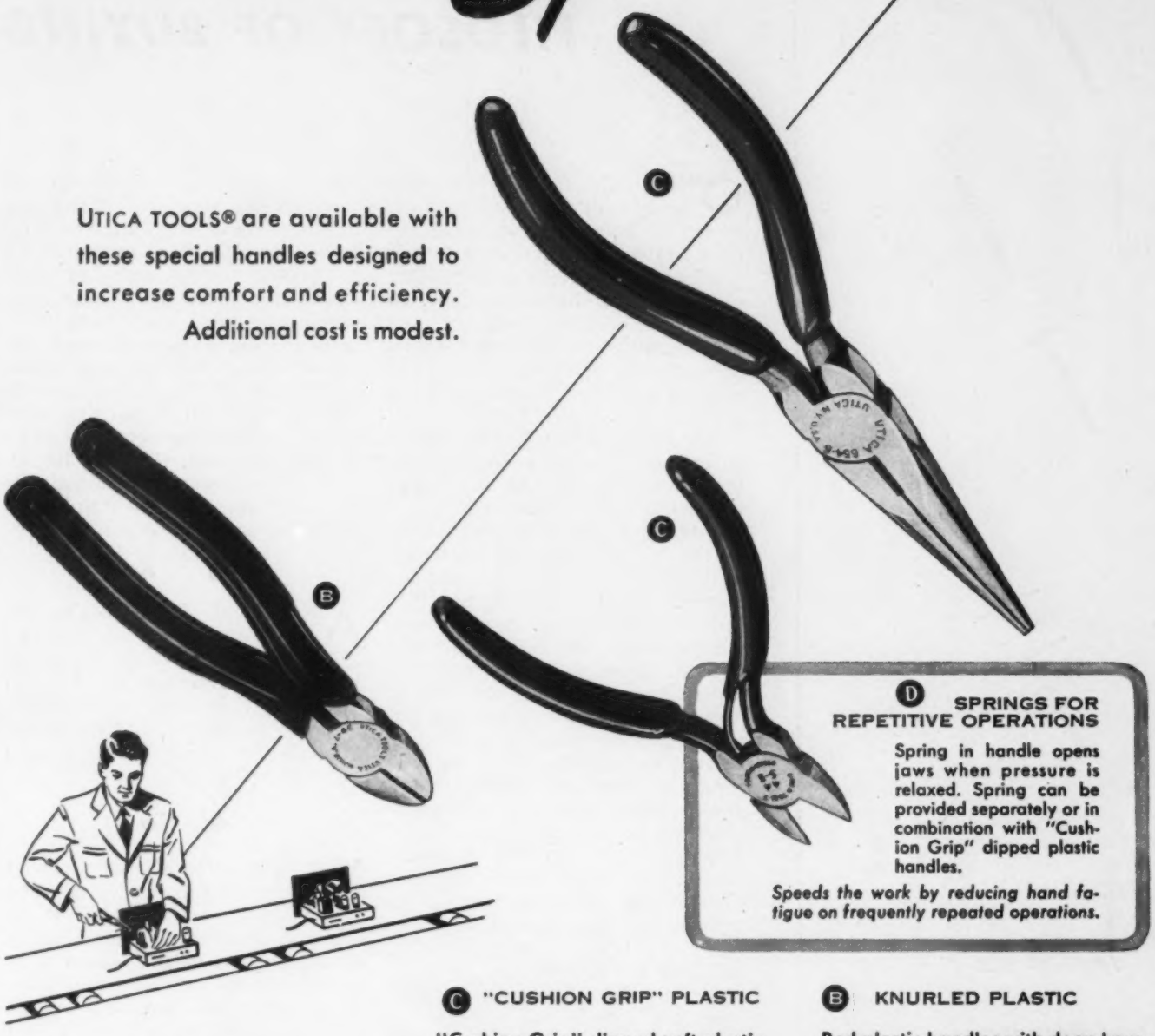
K&M best in asbestos

KEASBEY & MATTISON

COMPANY • AMBLER • PENNSYLVANIA

these handles *Speed* production

UTICA TOOLS® are available with these special handles designed to increase comfort and efficiency. Additional cost is modest.



D SPRINGS FOR REPETITIVE OPERATIONS

Spring in handle opens jaws when pressure is relaxed. Spring can be provided separately or in combination with "Cushion Grip" dipped plastic handles.

Speeds the work by reducing hand fatigue on frequently repeated operations.

ASK YOUR INDUSTRIAL DISTRIBUTOR ABOUT UTICA PLIERS WITH SPECIAL HANDLES AND HANDLE SPRINGS

C "CUSHION GRIP" PLASTIC

"Cushion Grip" dipped soft plastic handles give extra comfort. Particularly effective for women operators on production lines. Standard colors are red, blue and black.

B KNURLED PLASTIC

Red plastic handles with deep knurling for a positive but comfortable grip. Non-burning and non-explosive they will stand up under extreme temperature changes. Easily applied — "just hammer them on."

It pays to use quality tools — U TI CA® — and the world's best tools are made in U.S.A.

DROP FORGE AND TOOL CORPORATION

UTICA 4, NEW YORK

In Canada
ADLAM TOOL & SUPPLY CO., LTD., MONTREAL;
WALLS-IRONS, LTD., WINNIPEG







Even the smallest size Reamers are Standard with L&I

The Reamer Specialists
LAVALLEE & IDE, INC.
CHICOPEE, MASS.

F.O.B.



FILOSOFY OF BUYING

ONE of the troubles with any system of priorities is that, sooner or later, it seems necessary or desirable to set up some sort of a super-priority taking precedence over even the highest ratings, in order to meet some emergency. The usual result is that the entire system thereupon loses its significance and effectiveness, and begins to disintegrate.

The present set-up was thought to be immune to such a development, but historic precedent has again prevailed. The Defense Department is now using a super-priority known as the "S" or "brickbat" priority, by which a contractor can take his materials problems directly to NPA, instead of through military procurement channels, and NPA will, upon request, direct mills to accept such orders, pushing back other military orders that previously enjoyed top priority. Defense hastens to explain that the new system applies only to priorities between military programs, which already have priority on mill schedules, and thus will not directly affect civilian supplies. Wanna bet? The Atomic Energy Commission promptly jumped in with an "S" request for $150 million worth of heavy structural steel, stainless, and copper.

Just to show how this development works, it is supplemented by another super-priority, ranking just under the "S" but above former ratings. This is known as "S-1", or "cuecap", and has already been applied to some 250 other items that are listed in order of their relative urgency by the Joint Chiefs of Staff. That won't affect civilian orders, either.

• •

ECONOMIC Columnist M. S. Rukeyser believes that the hope of the business future in this country lies not in more high pressure selling, but in sounder selling, that considers first the buyer's need and interest. At least, that's the way we interpret his statement: "The star salesmen are those with the capacity to project into terms of orders the prospective requirements of their customers under fluctuating economic conditions. . . . Such salesmen are big earners through the years because they link their efforts to the profit motive of their customers." He goes on to say that nowadays a purchasing agent has to be a good salesman, too, and he defines a salesman as "a person able to induce the other fellow to behave in the manner he desires."

• •

ANOTHER definition that recently caught our eye says that "Scrap is raw material in the wrong place." The right place for metal scrap today is back at the mills. You can do yourself and the nation a service by seeing that it gets to the right place promptly.

• •

YOU can argue indefinitely about wage controls, inefficiency and corruption in government. But we like the forthright common sense of the New England mayor who summed it up this way, in asking for a salary boost for the city's tax collector, auditor, treasurer, and purchasing agent: "$3,380 a year isn't enough salary for men who have to handle $5,000,000 a year."

• •

ONE of the extra-curricular duties that falls to the lot of a business paper editor is keeping up with a flourishing correspondence from students in colleges of business administration, requesting aid or information in the preparation of their term papers and reports. Over the years, we have amassed, by proxy, enough thesis credits to earn several advanced degrees—or perhaps we are responsible for innu-

merable failures; we never know. Most of the requests can be answered with a few well chosen words or references, but occasionally we get one that really sets us back on our heels. For instance, here is the modest assignment put to us from a Texas student:

I am writing a report . . . . and would appreciate it very much if you would send me any information you have that I could use. Some of the specific topics I wish to deal with are:

1. Organizational charts of present and past business firms.
2. Early history of buying habits.
3. Evolution of centralized purchasing.
4. Present-day buying habits.
5. Procedures used in modern purchasing.
6. Place of modern purchasing in management.
7. Effects of the purchasing organization on business as a whole.
8. What will be the probable trend of the purchasing organization in importance?
9. Will purchasing become more centralized and specialized?

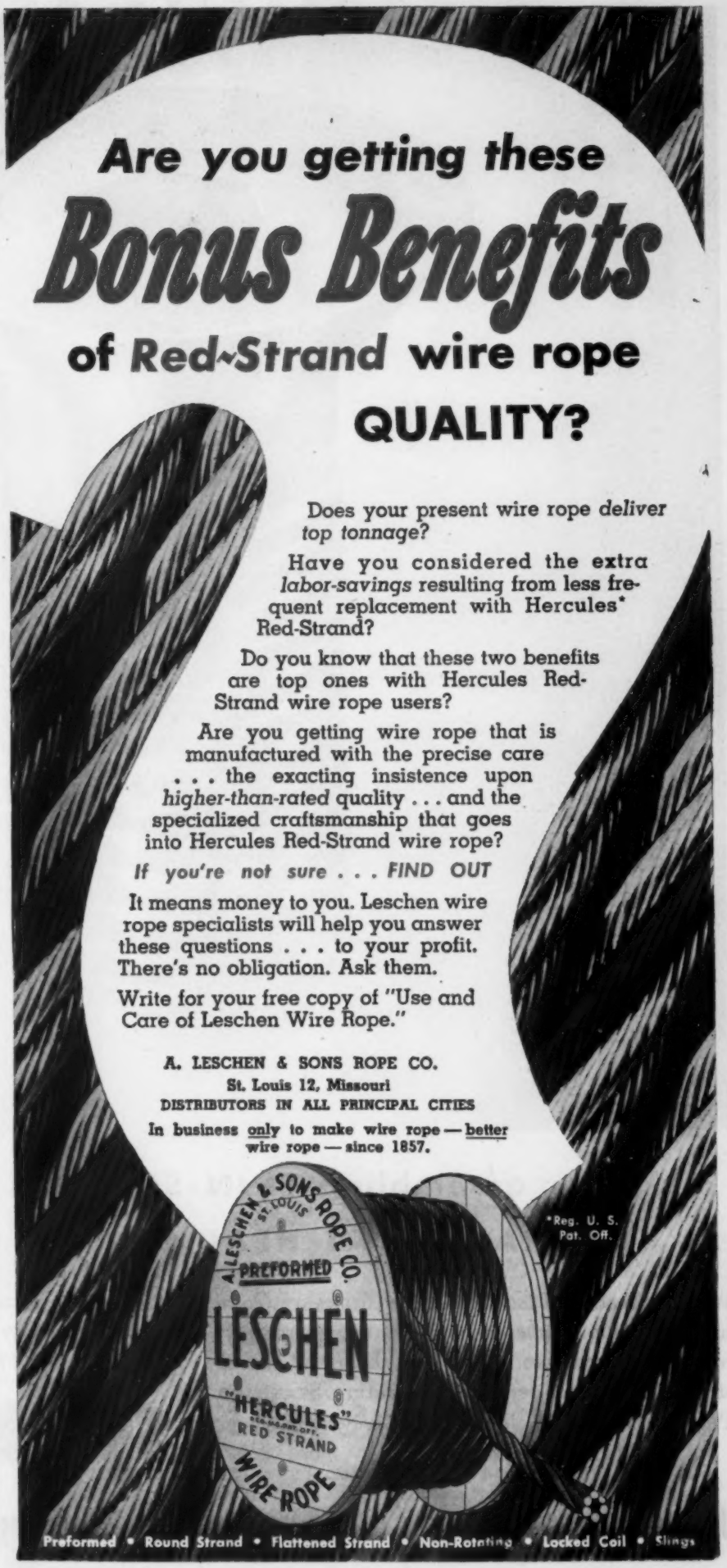
Just try to answer that one in a two-page letter.

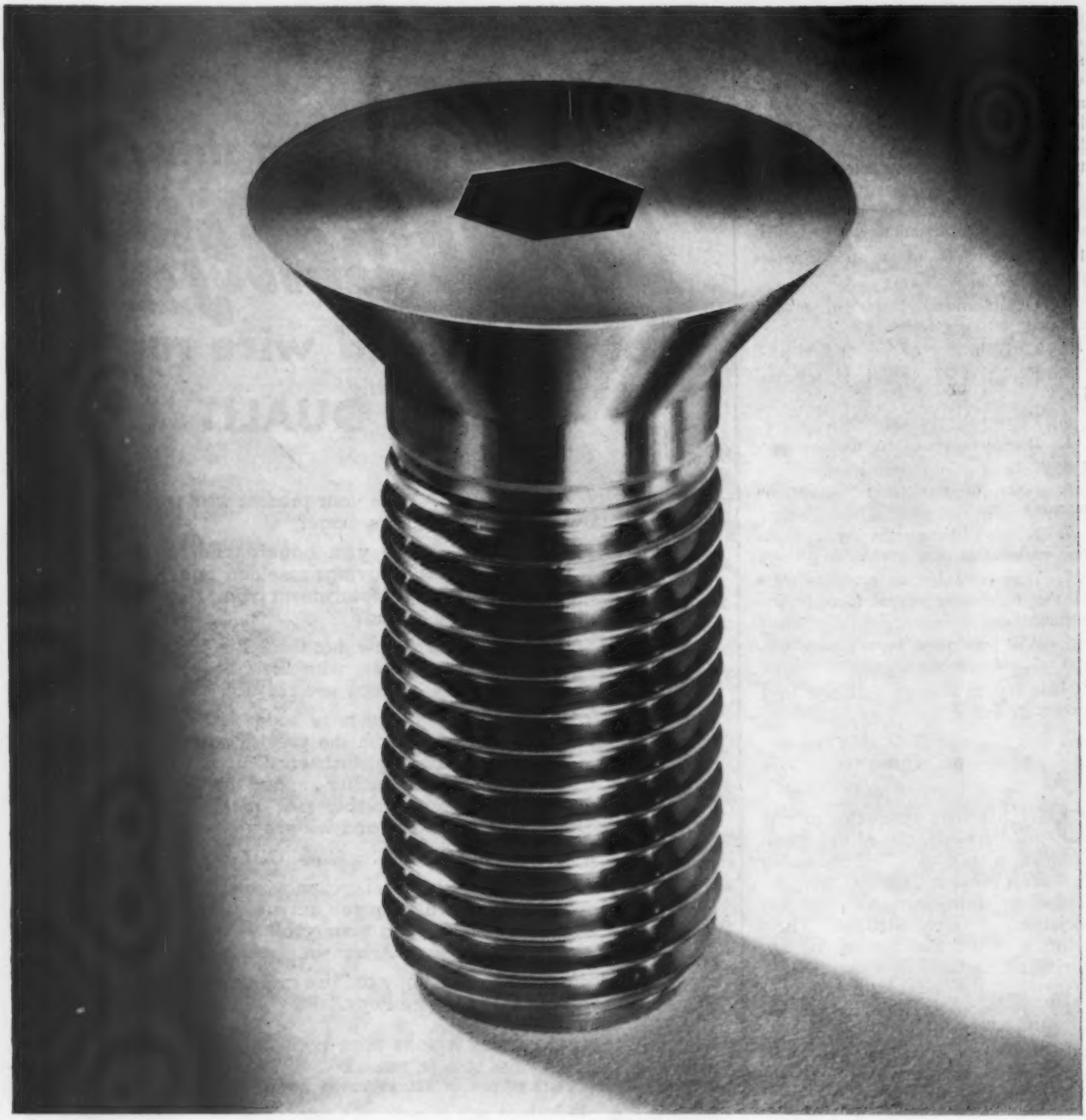
• •

OUR heartfelt sympathy to our good friends, the editorial and production staff of *The Purchasing Journal* (London), official publication of the Purchasing Officers Association of Great Britain. Their printers' plant was gutted by fire during the night of February 18/19, destroying the total stock of the February issue of the *Journal*, all printed and "awaiting despatch" on the following day. Plates and type were also destroyed.

Our admiration and congratulations on their herculean achievement in reproducing the entire 124-page issue, by offset printing from page proofs, in time for mailing just 10 days later. The extra day afforded by leap year enabled them even to get it out within the month of issue, on February 29th.

The hazard of such a fire is one of an editor's constant nightmares. Our own closest approach to such a calamity occurred last August, when a flash fire at our engraver's plant destroyed the kodachrome negative from which the plates for Russ Wenz' cover were being prepared. We were lucky in having alternative color photos, and met the emergency by using the "second choice".





For assembling THIN-SECTION MATERIALS
UNBRAKO FLAT HEAD SOCKET CAP SCREWS

Precision made to Class 3 fit, these UNBRAKO screws have maximum head contact, flush surface assembly, non-slip internal wrenching, high shear and tensile strength. Write for descriptive literature. STANDARD PRESSED STEEL Co., Jenkintown 31, Pennsylvania.

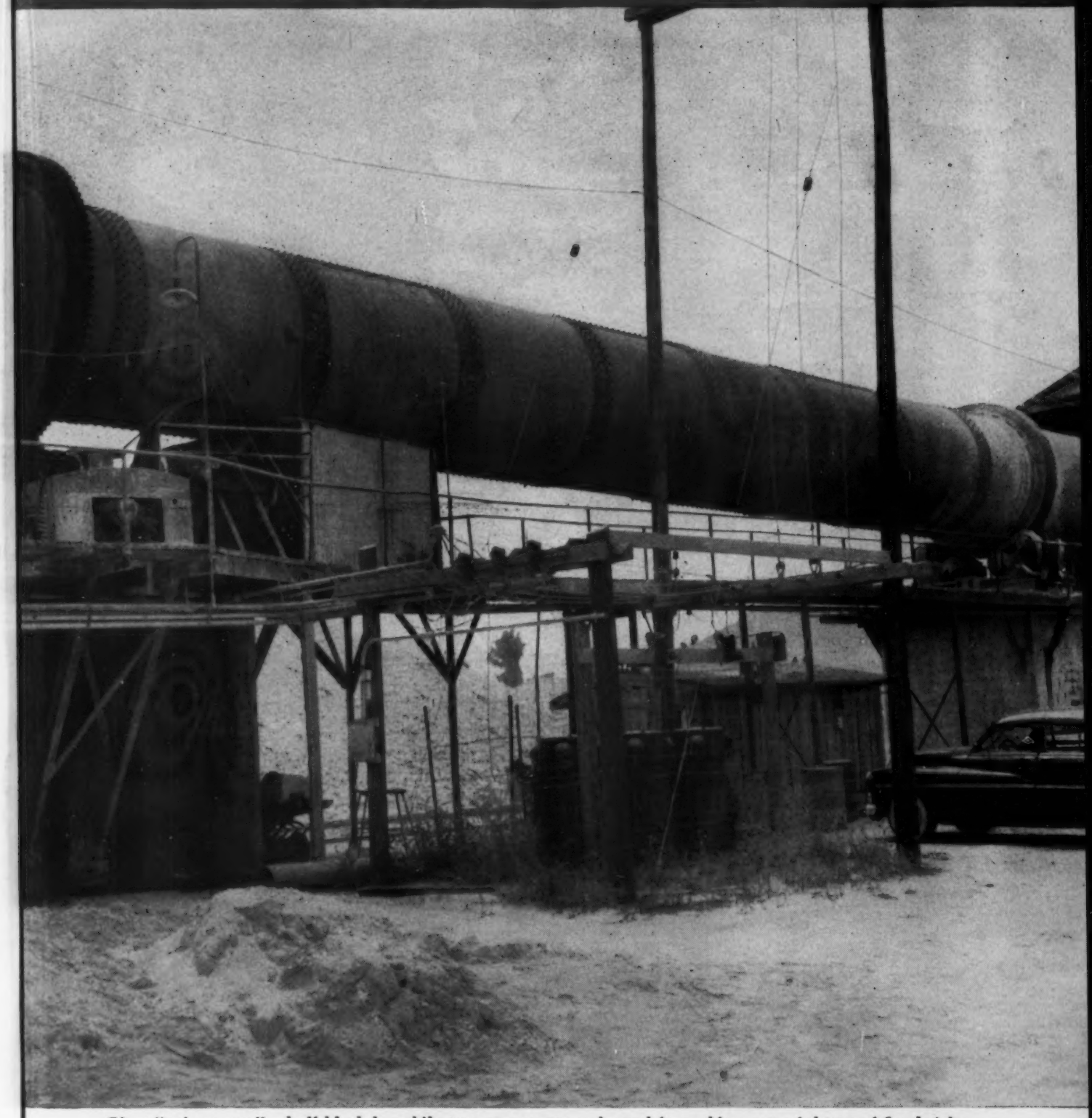
Standard sizes, #4 to ¾" inclusive, are available from your UNBRAKO distributor's stocks. Ask him about deliveries, you'll like what you hear.

See us at the N.A.P.A. Convention, Atlantic City, N.J., May 25-28.

sps JENKINTOWN, PENNSYLVANIA

UNBRAKO SOCKET SCREW DIVISION CAP SCREWS • SET SCREWS • SHOULDER SCREWS • DOWEL PINS • PRESSURE PLUGS

B.F.Goodrich GROMMET BELTS AT WORK

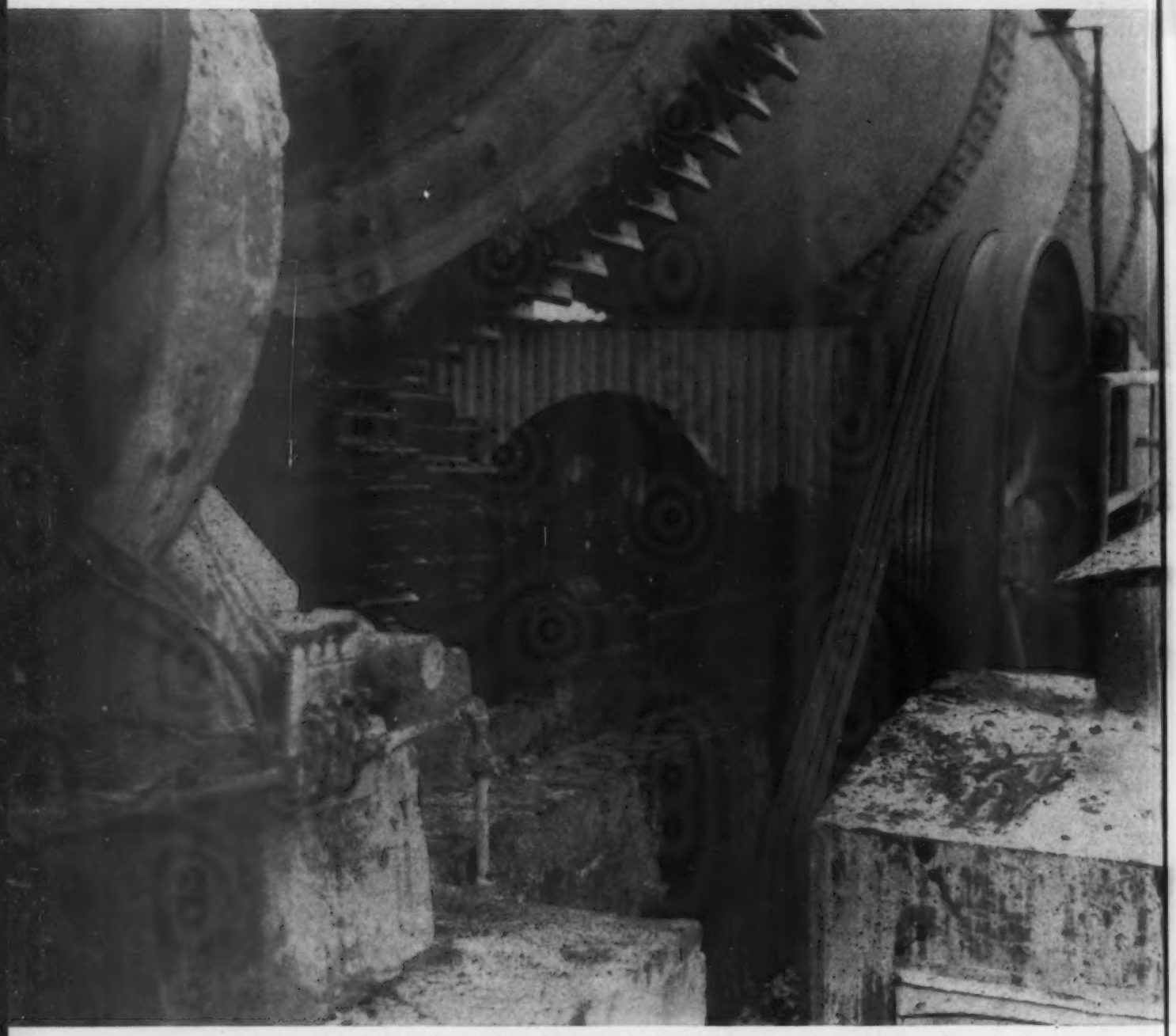


Giant "mix master"—half block long kiln processes compounds used in making a special type of fire brick.

Oven half a block long

That big cylinder in the picture above is a kiln used in making fire brick. It must be kept turning 24 hours a day. Keeping it turning was once a major problem. The V belts which drove it couldn't take the terrific punishment from the natural enemies of rubber—heat and oil and grease. A new kind of belt was needed. To see how the problem was solved, read the following pages.

Oven half a block long (continued)



V belts are "boiled in oil"—spattered 24 hours a day by hot grease from gears on heated kiln.



The ordinary V belts previously used couldn't withstand the heat, oil, grease and constant exposure to weather, as described on the preceding page. So B. F. Goodrich grommet belts were installed on trial—and since, have been running almost continuously; 24 hours a day for over a year. This is just one more example of how special compounding of rubber and the husky grommets in B. F. Goodrich V belts give a plus in service, lower operating cost and trouble-free operation!

20 to 50% Longer Life

Patented grommet V belts by B. F. Goodrich represent the only basic improvement since invention of the V

belt. Belts last 20 to 50% longer, depending on service. (The more severe the service the greater the increase over ordinary belts.)

What is a Grommet?

A grommet is like a giant cable except that it's endless—a cord loop built up by winding heavy cord on itself. There is no overlapping cord *section* as in all ordinary belts. Most belt failures occur in these sections where cords overlap!

All Cords Put to Work

Each grommet and every part of a grommet carries its share of the load. In ordinary belts under high tension the center cords "dish" because tension is greater near the driving faces. Dished cords are doing less work, not pulling their share. Grommet V belts have no center cords, there is no dishing—therefore much more strength in proportion to cord volume.

Better Grip, Less Slip

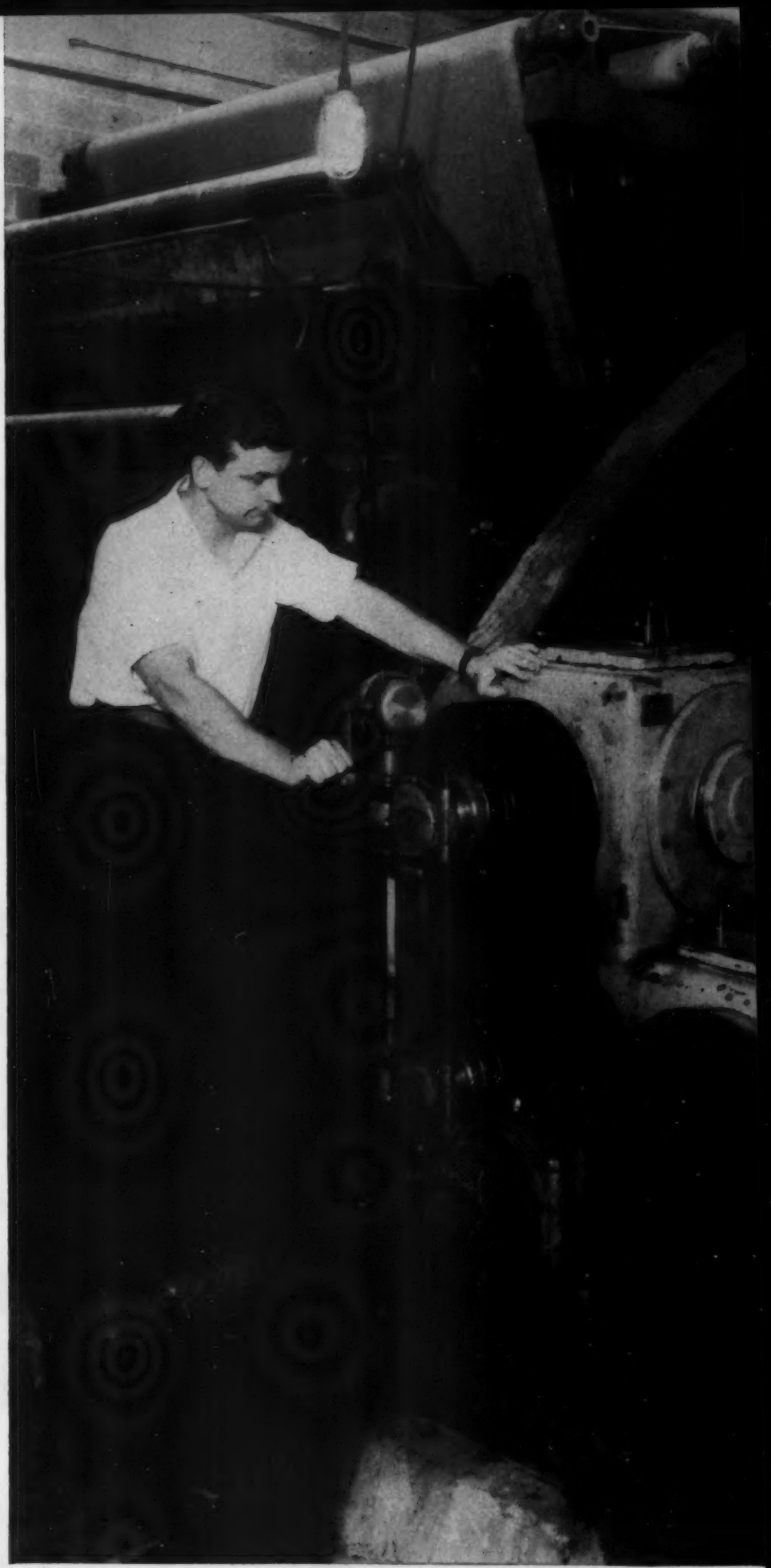
Grommet V belts have more rubber in relation to belt size. Without any stiff overlap, they're more flexible, grip pulleys better. Size for size, grommet belts give ⅓ more gripping power, pull heavier loads with a higher safety factor. Because there is less slip there is also less surface wear.

They Cost No More

You save belt costs because belts last longer, save production costs because machines keep running with fewer interruptions, save maintenance costs because they need less attention, yet cost not one cent more than others. Grommet belts are made in C, D and E sections. They are patented by B. F. Goodrich. No other V belt is a grommet belt (U. S. Patent No. 2,233,294).

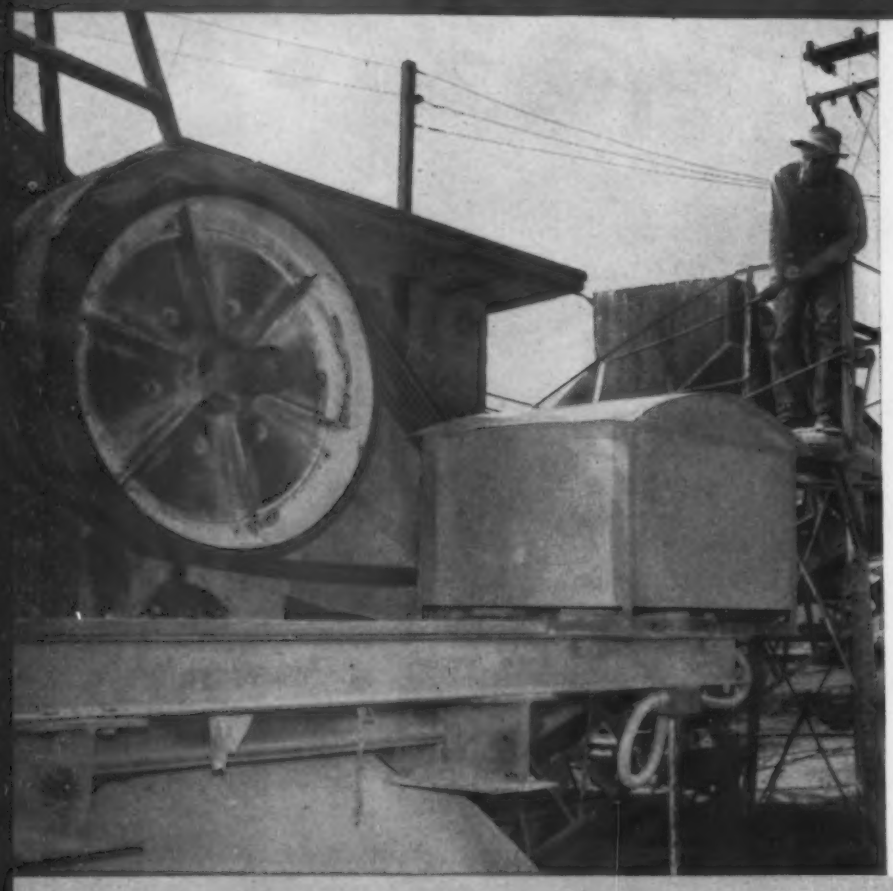
Wanted: Reliability

These belts help operate a paperboard machine at Austell Box Board Corp., Austell, Ga. This equipment runs 24 hours a day. Steel cable belts formerly used were unreliable in the face of the severe shock loads typical with this type of machinery. A distributor recommended B. F. Goodrich grommet V belts. And these have run trouble-free; have given between 3 and 4 times more service than previous steel cable V belts. The mill now runs without any interruption from belt troubles and the plant engineer credits grommet V belts.



Grommet V belts replace steel cable belt—give 3 times the service.

B.F.Goodrich GROMMET BELTS AT WORK



9 years' work in 4

Sierra Rock Products Co., Monrovia, California works double and triple shifts. That's how they figure that these B. F. Goodrich grommet belts gave 9 years' service in 4 years. And this record is even more spectacular when you consider these belts had to withstand the jolting strain of the primary rock crusher they drove, and had no shelter from the hot sun or abrasive action of sand and grit.

The grommet V belt is a typical B. F. Goodrich improvement—a money-saver that does jobs better in industries of all kinds. Good reasons why it will pay you to get in touch with your BFG distributor when you need V belts.

Another outstanding grommet V belt performance record.

These typical examples (see preceding pages) tell you why B. F. Goodrich grommet belts are superior to ordinary V belts—prove they last 20 to 50% longer—yet cost no more.

Grommet V Belts BY
B.F.Goodrich
FIRST IN RUBBER

The B. F. Goodrich Company, Industrial Products Division, Akron, Ohio

Clip coupon now... to get your copy... describing...

America's most beautiful Coolers!

1. Tells how to accurately determine the number and type of coolers needed for any installation. Room temperatures, type of work and all other factors are considered.

2. No less than 9 basic models to choose from, including the amazing new *low cost remote type cooler*. A model for every need.



Since 1929
Temprite
PRODUCTS CORPORATION
BIRMINGHAM, MICHIGAN



TEMPRITE PRODUCTS CORP.
P.O. Box 72-L, East Maple Rd.
Birmingham, Michigan

☐ Send me your complete line brochure
☐ Tell me where I can purchase Temprite Coolers

Name_____

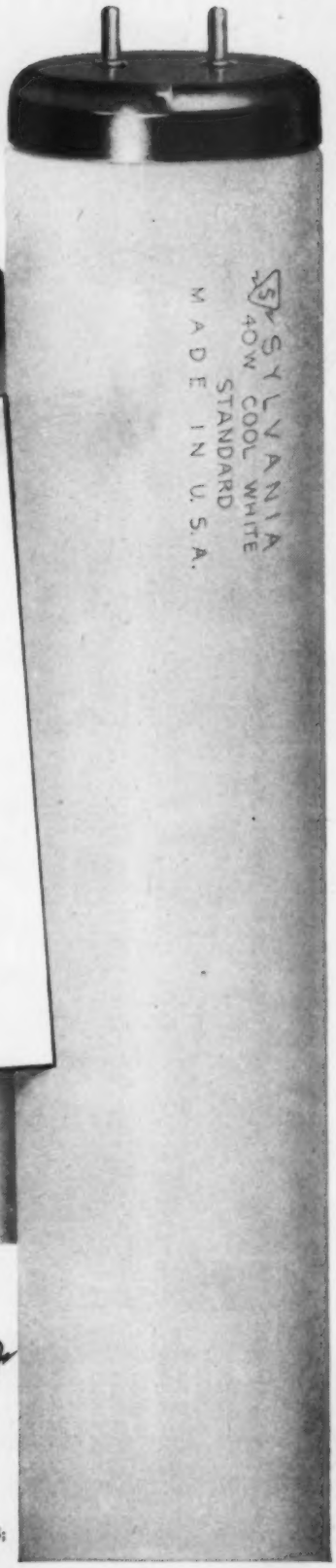
Address_____ Zone_____

City_____ State_____

DON'T PAY A PENNY



...for fluorescent tubes until you've tried Sylvania's. Your money back if you don't agree they're finest!



Try 24 Sylvania Fluorescent Tubes of any popular type. If they don't give more light and maintain color and brightness for a longer time than any other brand, send them back with your signed Certificate of Assurance and your money will be refunded.

Here's why Sylvania Tubes are finest

A pioneer in fluorescent lighting, Sylvania has further established its leadership by 2 important developments:

1. **Coil Coatings** which contain closely controlled amounts of Zirconium Oxide . . . a major factor in enabling Sylvania to triple the rated life of its fluorescent tubes.

2. **Better Fluorescent Powders** developed from highly critical proportions of selected minerals, and applied by improved methods to assure uniform thickness on the glass tubing, resulting in more even light for a longer time.

QUALIFIED LIGHTING CONTRACTOR AUTHORIZED SYLVANIA SALES AND SERVICE

Look for this sign! It identifies a Qualified Lighting Contractor ready to offer you expert service and Sylvania quality tubes and fixtures.

SYLVANIA

Sylvania Electric Products Inc., 1740 Broadway, New York 19, N. Y.

FLUORESCENT TUBES, FIXTURES, SIGN TUBING, WIRING DEVICES; LIGHT BULBS; RADIO TUBES; TELEVISION PICTURE TUBES; ELECTRONIC PRODUCTS; ELECTRONIC TEST EQUIPMENT; PHOTOLAMPS; TELEVISION SETS

YOU ARE NOT USING THIS OLD MILL FOR POWER TODAY

...but is your PATTERN EQUIPMENT just as ANTIQUATED?





• Industry is expending large sums for modern plants. Yet many enterprising firms still retain old gates and hand core boxes in their foundries.



(Top) Casting from a loose wood pattern is old-fashioned, slow and expensive.

(Bottom) Given modern pattern equipment, your foundry can utilize cope and drag patterns on a pin strip jolt combination team set-up . . . with greatly increased production at less cost.

Careful analysis of modern procedures in producing gray, malleable and ductile iron castings will prove profitable to you. Our "know-how", resulting from 126 years' experience, is at your disposal—without obligation.

Direct descendant of the pioneer foundry established by Seth Boyden

Sacks-Barlow FOUNDRIES, INC.

NEWARK MALLEABLE IRON WORKS

357 Wilson Avenue, Newark, N.J.



RESIDENT REPRESENTATIVES IN NEW YORK, PHILADELPHIA, BOSTON, BALTIMORE AND PROVIDENCE, R. I.



BACK IN THE 1880's

WHEN THE FIRST PNEUMATIC TIRE WAS INVENTED

Koven

WAS MAKING INDIVIDUALIZED FOOD EQUIPMENT



Stainless steel recovery unit consisting of a jacketed tank with a spiral coil condenser and rectangular receiver.

All aluminum tank condenser and receiver.

It was over 68 years ago that KOVEN began designing and building individualized food equipment. These time and money-saving units, in every case designed to meet the exact requirements of the job they are to perform, create faster, more economical production in food plants throughout the country. KOVEN can help you size up and solve your production problems. Call or write NOW—no obligation. In our two plants are welding and flame-cutting apparatus, sheet and plate metal shops, stress-relieving furnaces, pickling tanks for galvanizing, X-ray inspection. Among the many KOVEN products in all commercial and non-corrosive metals: Stainless Steel; Aluminum Sheet Fabrication; Boxes, Tote, Waste Cans; Chemical Apparatus; Coils and Pipe Bends; Copper Sheet Fabrication; Galvanizing Work, Mixers, All Kinds; Monel Metal Fabricators; Pails, Special Heavy; Pans, All Types, All Metals; Sinks, Scullery and Factory; Tables, Galvanized or Monel; Tanks, All Types, All Metals; Kettles, All Types, All Metals.





Plants:
Jersey City, N. J.
Dover N. J.

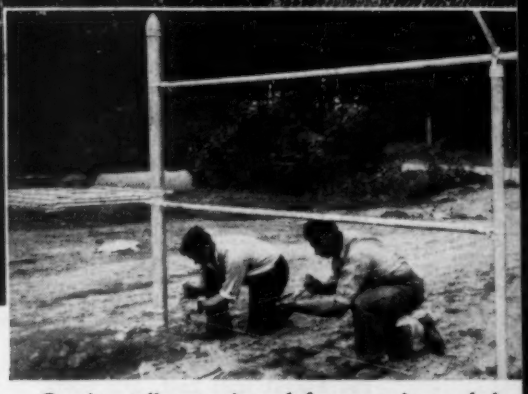
L. O. KOVEN & BRO., Inc.
154 Ogden Ave., Jersey City 7, N. J.

KOVEN FOR INDIVIDUALIZED FOOD EQUIPMENT SINCE 1881

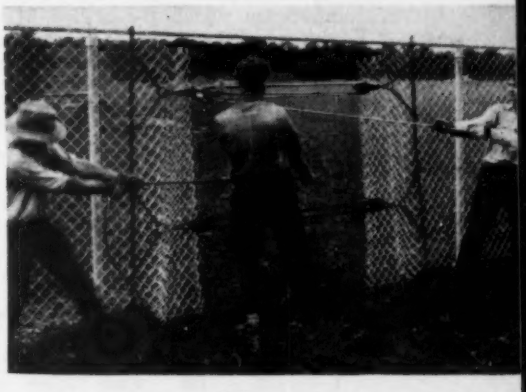


PROVIDE YOUR OWN SECURITY PROGRAM with *CONTINENTAL *Chain Link* FENCE...

Today, every plant needs security protection—to guard against dollar losses—to prevent sabotage, thievery and accidents. There is no substitute for a sturdy, long-lasting chain link fence to provide maximum safety for minimum investment. Continental chain link fence is well known for its staying-power. This rugged, open hearth steel fence is weatherproofed, after weaving, in a bath of hot zinc, There's a lifetime of protection and peace-of-mind in every foot of Continental chain link fence. Write for our free fence manual . . . or contact the nearest Continental sales office . . . find out how Continental fence can give you a low-cost security program.



Continental's experienced fence engineers help you plan and lay out fence, tailored to fit your property.



Line posts are solidly set in concrete—fabric carefully stretched and secured for permanence.

*TRADE MARK REG. U. S. PAT. OFF.

CONTINENTAL STEEL

CONTINENTAL STEEL CORPORATION

GENERAL OFFICES • KOKOMO, INDIANA

PRODUCERS OF *Manufacturer's Wire* in many sizes, shapes, tempers and finishes, including Galvanized, KOKOTE, Flame-Sealed, Coppered, Tinned, Annealed, Liquor Finished, Bright, Lead Coated, and special wire. ALSO, Coated and Uncoated Steel Sheets, Nails, Continental Chain Link Fence, and other products.



HOW TO SAVE MONEY ON STAMPING RUNS OF LESS THAN 10,000

FOR EXAMPLE: TAKE THE PART ILLUSTRATED

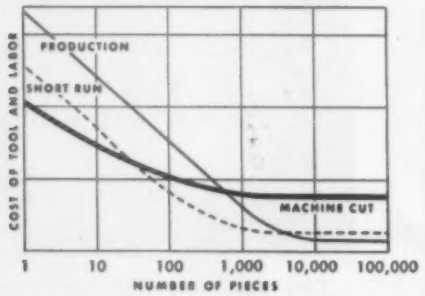


If your total requirement is 1 to 65 parts, our Machine-Cut Method is the most economical. You pay no die costs whatsoever.

If your total requirement is for 65 to 7,000 parts, the Short Run Method using our exclusive Hecht-type dies, combined with specialized bench press operations, is most satisfactory. Die costs are extremely reasonable.

If your total requirement exceeds 7,000 parts, the standard Production Method, using the best quality dies, gives the lowest unit cost. Die costs, though higher, can be spread over a greater number of parts.

The logarithmic chart below shows the computation which the skilled Methods Engineer makes to arrive at this conclusion, for the particular part illustrated. Though the computation varies for almost every part, the general principle remains the same.



Send today for our free, 12 page booklet full of helpful facts on buying stampings. Profusely illustrated.

. . . the exclusively short run supplier is *NOT* always the best source

The Methods Engineer, skilled in stamping practice, will tell you that a run of 10,000 or less might be produced by any one of three methods. Here's what decides which is the most economical:

1. **The quantity of each run**
2. **The *total* requirement for the part**
3. **The costs of various *types* of dies**
4. **The labor factor**

Quantity alone does not decide the method.

THE MOST IMPORTANT ECONOMY FACTOR IN BUYING STAMPINGS IN LIMITED QUANTITIES

Whenever possible, advise your stampings supplier of your total requirements. Your *second order* of the same part may justify a production-type die on the *first* order. The chart at left illustrates this. Whenever you can, avoid buying the expensive labor factor that is necessarily figured in the Machine-Cut or Short Run Methods.

Get your quotations from a stampings supplier who can impartially quote you on the most efficient production method. This will be the supplier, like our Stampings Division, who is equipped for all three!

STAMPINGS DIVISION

LAMINATED SHIM COMPANY, INC.

2405 UNION STREET ESTABLISHED 1913 GLENBROOK, CONN.

FOR EFFICIENT PRODUCTION — WHETHER ONE PART OR A MILLION



Get

something extra

when you buy

solder

What exactly do you specify when you order solder: Composition? Form? Quantity?

These are necessary details, of course.

But you really expect to get certain extras besides... extras that will stamp the solder you buy "top quality." And when you order Dutch Boy* solder from National, you get these extras.

For example, in "Dutch Boy" solder you get on-the-button formulation. You get prompt, smooth melting and efficient "wetting." You get the proper plastic range for every application. And you get pre-tested performance.

And measured in performance, measured in results, every "Dutch Boy" solder gives you a uniformly strong, tight, lasting joint time after time.

For something extra when you buy solder, specify "Dutch Boy"... made by the leader in lead and lead alloys.

A good soldering job calls for a good flux. In the NALCO line there's the right flux for every soldering need.*



Solder

with a NATIONAL reputation

LEAD COMPANY

New York 6; Atlanta; Baltimore 3; Buffalo 3; Chicago 8; Cincinnati 3; Cleveland 13; Dallas 2; Philadelphia 25; Pittsburgh 12; St. Louis 1; Boston 6 (National Lead Co. of Mass.); Los Angeles 23 (Morris P. Kirk & Son, Inc.); Toronto, Canada (Canada Metal Company, Limited)

*Reg. U. S. Pat. Off.



the STETSON is part of the man

JOHN B. STETSON COMPANY
PHILADELPHIA 22, PA.

Mr. C. C. Lucas
Howell Electric Motors
Broad Street Suburban Station
Philadelphia, Penna.

Dear Mr. Lucas:

It is not every day these days that a buyer can express his thanks and appreciation to a vendor for prompt compliance with scheduled delivery dates.

I want to do just that to you and, through you, to the Howell Electric Motors. While I am at it I wish to mention, also, that we are very pleased with the quality of workmanship and cleanness of design of your motors. Because our own product owes its national eminence to quality, we feel peculiarly fitted to recognize that standard in others.

With appreciation for your individual interest and the valuable cooperation of your factory, I remain

Yours very truly,

A. Kennedy, Jr.
Plant Engineer

AKjr/mc

MORE PEOPLE WEAR STETSON HATS THAN ANY OTHER BRAND

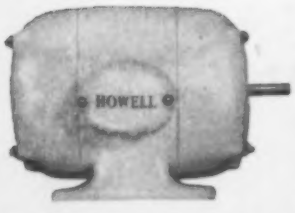
HOWELL MOTORS are part of the STETSON



HOWELL Type K Motor. Offers constant performance in the presence of dirt, dust, fumes and moisture. Sizes from 3 to 150 H.P. at 1800 R.P.M. Either vertical or horizontal mounting.

We think you, too, will appreciate Howell's attention to your electric motor problems. Howell engineers are always ready with technical assistance on motors in the standard NEMA frame sizes or with specially designed motors if your situation requires them.

So, on the tough jobs, on every job, consult Howell — manufacturers of industrial type motors from 1/6 to 200 H.P. since 1915. Contact the Howell representative in your city or write to us direct.



HOWELL Sanitary Motors meet the most exacting standards of the dairy and food industries. They contain no pockets, cracks, or crevices. Available for vertical or horizontal mounting.

HOWELL Red Band MOTORS

HOWELL MOTORS
HOWELL ELECTRIC MOTORS CO., HOWELL, MICH.
Precision-built Industrial Motors Since 1915

We are leading a double life!

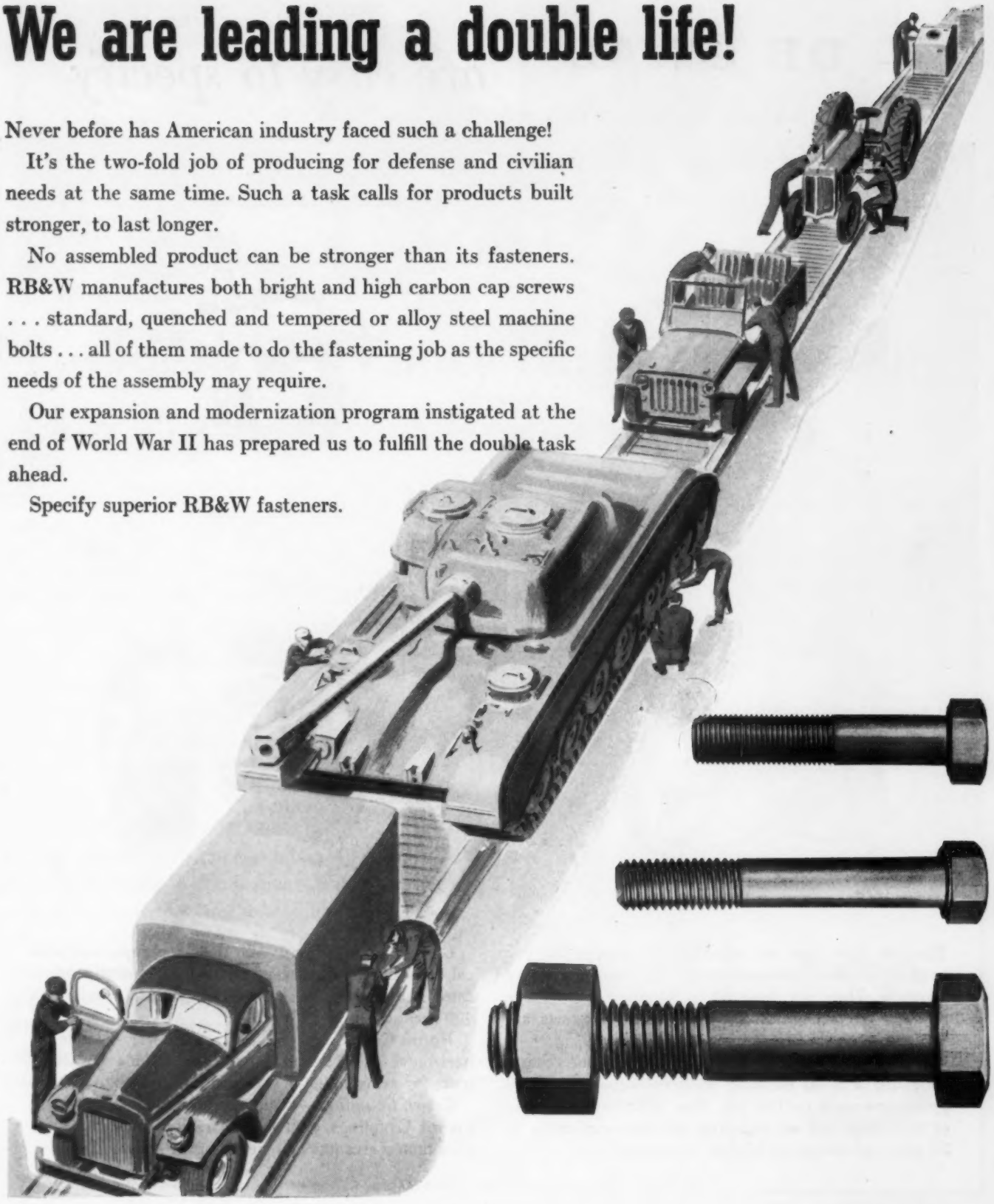
Never before has American industry faced such a challenge!

It's the two-fold job of producing for defense and civilian needs at the same time. Such a task calls for products built stronger, to last longer.

No assembled product can be stronger than its fasteners. RB&W manufactures both bright and high carbon cap screws . . . standard, quenched and tempered or alloy steel machine bolts . . . all of them made to do the fastening job as the specific needs of the assembly may require.

Our expansion and modernization program instigated at the end of World War II has prepared us to fulfill the double task ahead.

Specify superior RB&W fasteners.



RUSSELL, BURDSALL & WARD BOLT AND NUT COMPANY

RB&W
THE COMPLETE QUALITY LINE

Plants at: Port Chester, N. Y., Coraopolis, Pa., Rock Falls, Ill., Los Angeles, Calif. Additional sales offices at: Philadelphia, Detroit, Chicago, Dallas, Oakland. Sales agents at: Portland, Seattle.

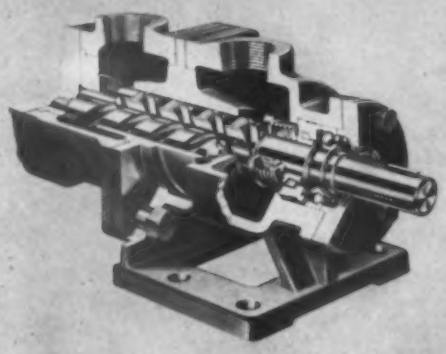
106 YEARS MAKING STRONG THE THINGS THAT MAKE AMERICA STRONG

DE LAVAL

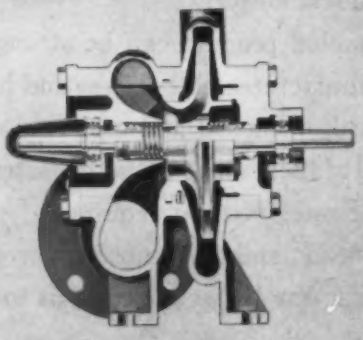
STANDARD PRODUCTS

are easy to specify

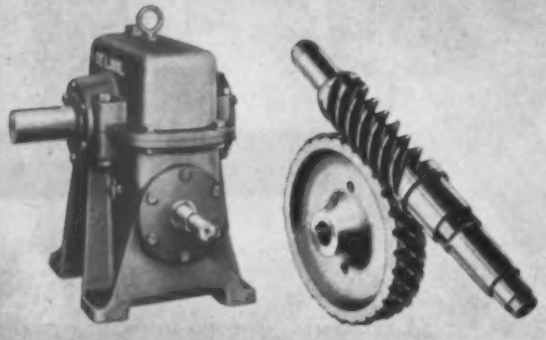
IMO Rotary Pumps



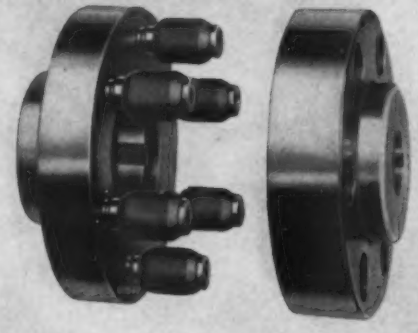
GS Centrifugal Pumps



Worm Gear Speed Reducers and Sets



Crown Couplings



You can save time by selecting the equipment you need from these precision-made De Laval standard products. They are designed to handle a wide range of applications . . . at low cost. Many products are "on the shelf," ready for immediate delivery.

IMO Rotary Pumps—The A313A IMO—for general hydraulic and oil handling services—capacities to 80 gpm—pressures to 150 psi. The A313B—for variety of hydraulic and oil handling services—capacities to 80 gpm—pressures to 275 psi (constant).

GS Centrifugal Pumps—In the GS pumps, mechanical seals eliminate stuffing boxes—permanently lubricated ball bearings eliminate lubrication. Capacities to 400 gpm, heads to 230 feet.

Worm Gear Speed Reducers and Sets—Made in horizontal and vertical, single and double reduction units for ratios to 8000:1 for transmitting up to 250 hp.

Crown Couplings—Unique crowned bolt in De Laval Crown Couplings distributes stresses over a greater area than a straight bolt, resulting in longer life.

DL148



DE LAVAL *Standard Products*

Send for your complete set of De Laval easy-selection manuals. Write today.

DE LAVAL STEAM TURBINE COMPANY
Trenton 2, New Jersey



THE BASSET HOUND, a hunting dog, is famous for his keenness of scent. The ears are long enough to fold over the tip of the nose and heavy dewlaps hang from a short powerful neck. The short legs are capable of tireless action.

"Pedigree" is a Fancy Name for "Quality" . . . in Bassets or in Boxes

AND in both cases, it's earned by knowing and controlling every step in development, right up to the finished article.

UNION traces the ancestry of its corrugated containers all the way back to Union-owned forests . . . controlled through every step of manufacture in Union mills (largest in the world) and right up to the shipping of Union boxes to your plant.

That earns a pedigree for Union boxes, because you *know* you can depend on every shipment being up to the same high standards. You can reduce breakage, pilferage, returns.

Union Carbide and Carbon agrees, and ships its nationally known Prestone Anti-Freeze all over America in Union's *pedigreed* boxes—just as hundreds of other famous firms do.



TRADE MARK UNION

Dependable Packaging Since 1872

UNION Corrugated Containers

UNION BAG & Paper Corporation

Principal Offices: WOOLWORTH BLDG., NEW YORK 7, N. Y.

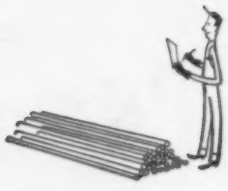
Corrugated Container Plants: **SAVANNAH, GEORGIA • CHICAGO, ILLINOIS • TRENTON, NEW JERSEY**





1

Separating Stainless Scrap: Use this chart to quickly segregate Stainless steel scrap for salvage . . . thus making the scrap more usable for industry, and increasing its value to you.



2

"Unscrambling" Mixed Stainless Stocks: The chart can help you save time getting Stainless stocks in order and reduce the danger of your men using the wrong Stainless for the job.



3

Preventing Trouble On The Job: If there is reasonable doubt as to the identity of the steel, use the chart before starting a job to double-check the type of Stainless to prevent troubles that could be caused by wrong treatment in fabrication.

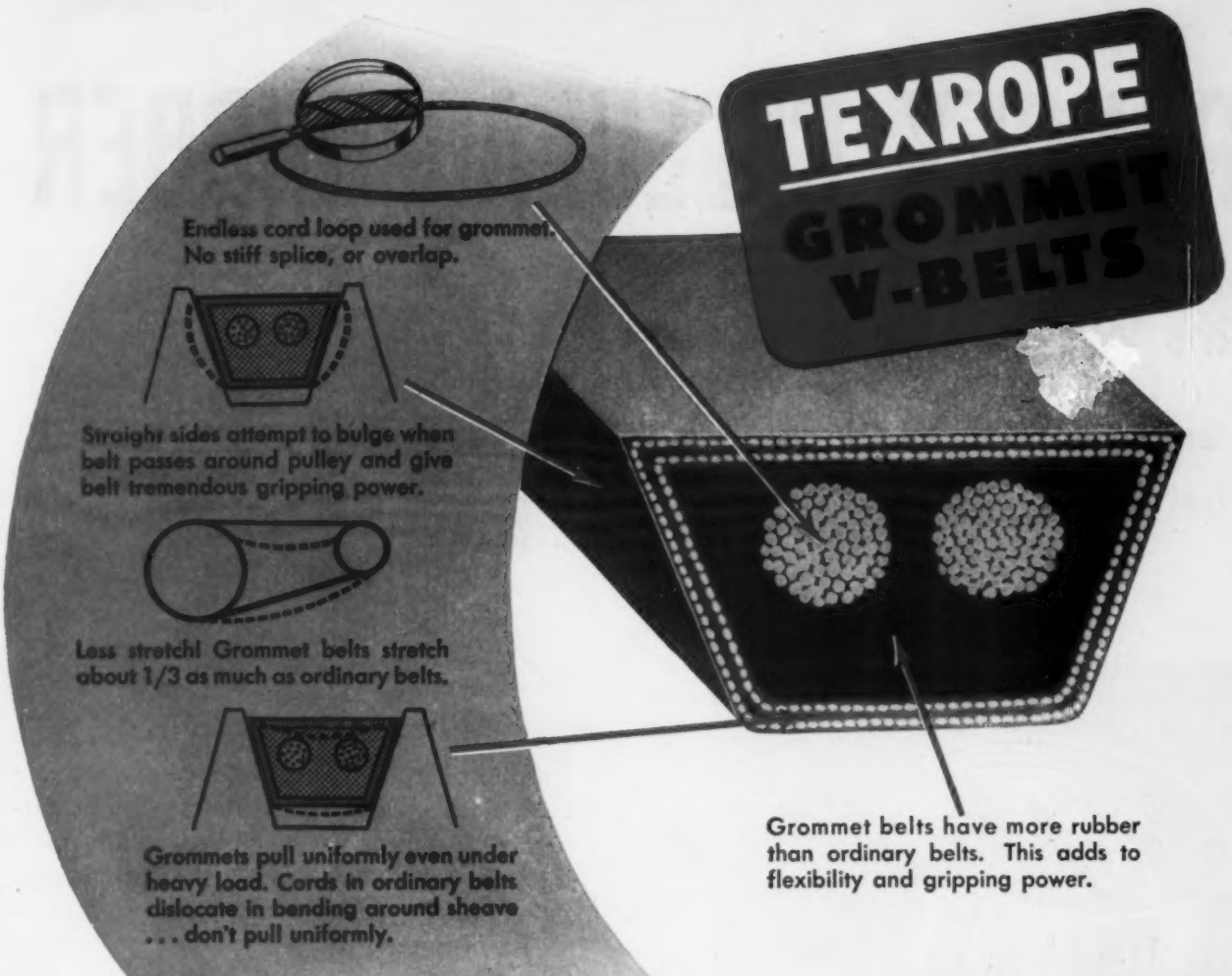
Any user of Stainless steels will find this new Carpenter Identification Chart can save time, money and shop headaches by providing a quick method for identifying Stainless steels. The chart tells how to prepare the samples . . . then diagrams and explains fully how to use each of eleven different tests for identifying various Stainless types. Typical reactions are given for the nitric acid, magnet, spark, hardness, muriatic acid, sulphur spot, nickel spot and stabilization tests. Measuring 11" x 22", the chart is convenient to use right on the testing table. Carpenter offers this handy chart free to Stainless steel users. No obligation . . . just drop us a line on your Company letterhead. THE CARPENTER STEEL CO., 182 W. Bern St., Reading, Pa.

It is assumed that the operator making the tests described in this Identification Chart will have some technical knowledge of the various alloys involved. The tests are not designed to supplant chemical analysis, but they are useful in separating various Stainless types that show marked differences in their chemical and physical properties.

Carpenter

STAINLESS STEEL

takes the problems out of production



Get 20-50% Longer Belt Life!

Texrope Grommet belts cost same as ordinary belts yet last longer, grip better!

YOU SAVE with long lasting *Texrope* grommet belts. Production costs are low because machines keep running with few interruptions. Maintenance costs are low because grommet belts have little stretch, need little attention.

Patented grommet belts last 20 to 50% longer than ordinary belts, depending on the service. The more severe the service, the greater the increase over ordinary belts. The reason? There is no overlapping cord section as in all ordinary belts. Most belt failures occur in sections where cords overlap. A grommet is like a giant cable except that it's endless — a cord built up by winding heavy cord on itself.

More Gripping Power

In addition, *Texrope* grommet belts have more rubber in relation to belt size than ordinary belts. Without that stiff overlap, they're more flexible, grip pulleys better. Size for size, grommet belts give 1/3 more gripping power, pull heavier loads with higher safety factor. Less slip means less surface wear too.

Jointly Developed

Grommet belts are made in C, D and E sections, and cost no more than ordinary belts. They were developed as a result of cooperative research of Allis-Chalmers and *The B. F. Goodrich Company*.

Call your nearby Allis-Chalmers distributor or district office when you need V-belts and specify long life *Texrope* grommet V-belts, or write Allis-Chalmers, Milwaukee 1, Wisconsin.

A-3634

Texrope, Magic-Grip, and Vari-Pitch are Allis-Chalmers trademarks.

ALLIS-CHALMERS

A-C ALLIS-CHALMERS

ORIGINATOR OF THE MULTIPLE V-BELT DRIVE

Everything in V-Belt Drives

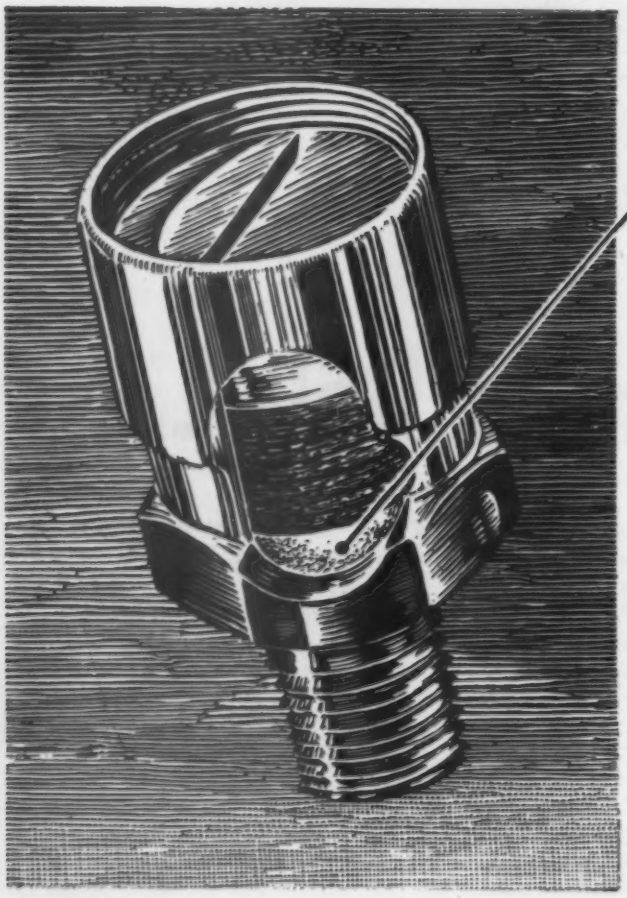
In addition to V-belts, Allis-Chalmers can furnish all your drive needs including: *Magic-Grip* sheaves — the fastest mounting sheave you can buy; and *Vari-Pitch* sheaves for changing speeds. These are made for standard and wide range belts, in two types: Stationary control — for changing speeds when the machine is not running. Motion control — for changing speeds while the machine is in motion. In addition, A-C makes Speed Changers up to 75 horsepower.

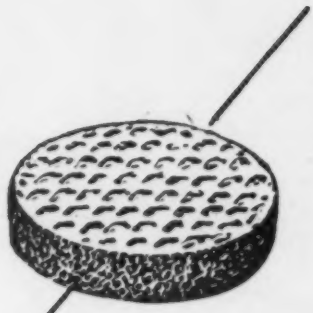
You'll like Allis-Chalmers engineering too, for A-C has installed more industrial V-belt drives than any other company.

SPONGEX CELLULAR RUBBER

Dams Water...Vents Air

in Ventmaster automatic valve for hot water heating systems





Uncompressed, this disc of Spongex cellular rubber forms an orifice of thousands of interconnecting cells which permit air to pass through the valve. Water, following the same path, causes companion hygroscopic discs to swell, compressing Spongex into a dam to shut off water flow. Heat from the radiator dries the hygroscopic discs; the Spongex cells open. Air again passes through the valve. This cycle continues year after year.

Unfailing compressibility under widely varying temperature changes, as required in this Ventmaster application, is an outstanding characteristic of Silicone Spongex. Even at — 100° F or 450° F, Silicone Spongex continues to function.

Years of specialization have developed a Spongex know-how with cellular rubber . . . its advantages and limitations under widely varying applications. We always are glad to have you draw on this experience for your cellular rubber needs.

SPONGEX® Cellular Rubber

used for cushioning, insulating, shock absorption, sound and vibration damping, gasketing, sealing, weatherstripping and dust proofing.

THE SPONGE RUBBER PRODUCTS COMPANY 504 Derby Place, Shelton, Conn.



NOW HE KNOWS IT'S RIGHT. "He" could be a final or process inspector, a foreman or a tapping machine operator — anyone at a key point on the production line.

But, he could also know when all is **not** well. This gage could warn of a dull tap, a drill going wrong, misalignment in a set up. All these and other faults can be detected by proper gaging.

Know that it's right. Prevent waste. Use good gages!

GREENFIELD TAP and DIE CORPORATION

GREENFIELD, MASSACHUSETTS

otary self-opening die head

for use in live spindle machines

GEO MET RIC **KD** and **CK**

Bulletin KD 4 pages

Style KD

The KD Rotary Self-Opening Die Head has been expressly designed for use on any live spindle machine, particularly on automatics. Long service and threads cut to precise accuracy are insured by the KD's features of rugged simplicity. Compactness, positive tripping, and positive resetting. Chaser removal is easy. Right or left hand threads can be cut with equal ease. The KD tools are made in seven sizes providing a cutting range of 1/16" to 2 1/2". The hollow shank permits threading any length permitted by the machine construction.





SPECIFICATIONS STYLE

Style and Size Inches	CAPACITY			Standard Pipe Threads	Code Word	A	B	C	D	E	F	K	Yoke Thickness	†Standard Shanks			Maximum Shank Without Bushing	
	Straight Threads													Dia.	Lgth.	Bore	Dia.	Lgth.
	Diam. Inches	Length	Coarsest Pitch															
KD 5/16	1/16– 5/16	1 1/2	18	None	Radix	2 1/16	1 15/32	1 5/32	3/8	5/32	9/16	7/16	1 13/16	1 7/32	5/16	1/4	5/8	1 3/8	1 1/32	5/8	2 5/16
KD 9/16	1/8– 9/16	2	12	1/8– 1/4	Raceme	2 3/4	2 3/4	1 23/32	1/2	1/4	1 3/16	1 1/16	2 13/32	7/8	1/2	1/4	1	2 1/4	5/8	1	3 7/16
KD 1	1/4–1	2 3/4	8	1/8– 3/8	Rally	3 13/16	3 3/4	2 1/2	5/8	1 1/32	1 1/16	1 1/8	3 13/32	1 7/16	1 3/16	5/16	1 1/2	2 1/4	1 1/16	1 1/2	4 7/16
KD 1 1/4	1/2–1 1/4	3 3/4	7	1/4– 3/8	Raphia	4 5/8	4 11/16	2 13/16	3/4	1 5/32	1 7/16	1 3/8	4 1/8	1 3/4	1 1/32	7/16	1 13/16	2 3/4	1 5/16	2 3/16	4 7/16
KD 1 1/2	5/8–1 1/2	3 3/4	6	3/8–1	Renown	5 1/16	4 11/16	3 3/8	3/4	1 5/32	1 7/16	1 5/8	4 11/16	2	1 1/32	7/16	2 5/16	2 3/4	1 5/8	2 3/4	4 7/16
KD 2	1 –2	3 3/4	6	3/4–1 1/2	Repand	5 3/4	4 11/16	3 15/16	3/4	1 5/32	1 7/16	2 1/4	5 1/4	2 1/2	1 1/32	7/16	2 3/4	4 3/4	2 1/8	3 1/2	4 7/16
KD 2 1/2	1 1/4–2 1/2	3 3/4	6	1 –2	Reside	6 9/16	4 11/16	4 3/4	3/4	1 5/32	1 7/16	2 7/8	6 1/16	3 1/4	1 1/32	7/16	3 1/2	4 3/4	2 5/8	4 1/16	4 7/16

*Length that can be cut when Shank is solid.
†The following KD Die Heads are also considered Standard.
5/16" and 9/16" KD for Davenport Automatic.
9/16" KD for 5/16", 3/8" or 7/8" Gridley M. S. A. (Standard Spindle).
9/16" KD for 9/16" Gridley M. S. A. (Sensitive Spindle).
1" KD for 1 1/4" Gridley M. S. A.
1 1/4" KD for 1 3/4" Gridley M. S. A.
1 1/2" KD for 2 1/4" or 2 5/8" Gridley M. S. A.

SPECIFICATIONS STYLE CK DIE HEADS

CK 1	1/16–1	2 1/4	12	None	Cekab	3 1/16	2 1/8	2 5/16	1/2	1/4	15/16	1 1/16	2 13/16	1 1/4	1/2	5/16	1 1/4	2 1/4	1 13/16	1 1/4	4
CK 1 3/4	15/16–1 1/4	2 1/4	12	None	Cekad	4 5/8	3	3 1/4	1/2	1/4	1	1 7/8	4 1/4	2 1/2	1/2	3/8	2 1/4	2 3/4	1 13/16	2 1/4	4
CK 2 1/4	1 1/2–2 1/4	2 1/2	12	None	Cekaf	5 1/8	3 1/2	3 3/4	1/2	1/4	1	2 3/8	4 3/4	2 5/8	1/2	1/2	2 3/4	3 3/4	2 5/16	2 3/4	4
CK 2 3/4	2 –2 3/4	2 1/2	12	None	Cekal	5 5/8	3 1/4	4 1/4	5/8	1/4	1	2 7/8	5 1/4	3 1/8	1/2	1/2	3 1/4	4	2 13/16	3 1/4	4
CK 3 1/4	2 1/4–3 1/4	2 5/8	12	None	Cekam	6 1/8	3 3/8	4 3/4	5/8	1/4	1 5/16	3 3/8	5 3/4	3 5/8	1/2	1/2	3 3/4	4 1/4	3 5/16	3 3/4	4

Chasers do not interchange with KD and KH2.
*Length that can be cut when Shank is solid.
Standard K Chasers used in KD Die Heads.

GEOMETRIC TOOL COMPANY DIVISION
Greenfield Tap and Die Corporation
NEW HAVEN 15, CONNECTICUT

If You Want To Cut Costs

YOU CAN ADD THIS UP



fast

DRIVES FASTER—*SAVES ASSEMBLY TIME*

+ HOLDS TIGHTER—*FEWER SCREWS NEEDED*

+ SAFER TO USE—*FEWER REJECTS*

+ DRIVES STRAIGHT—*SAVES RESTARTING SCREW*

+ FEWER OPERATIONS—*SAVES TIME*



You can identify **TWIN-fast** Reg. U. S. Pat. Off. by its relieved shank and twin thread

IT ALL ADDS UP TO

Important Savings for you!

Get all the facts on this new screw that fastens wood to wood, metal to wood, or plastic to wood. It has four new basic improvements.

1. Relieved shank diameter
2. Parallel twin threads
3. Cylindrical construction
4. Single centered point

Can be furnished in either Slotted or Phillips Recessed Heads.

TWIN-fast

Reg. U. S. Pat. Off.
2,314,391 – 2,314,390 – 2,373,878
2,373,948 and 2,483,186

The Faster Driving... Cost Cutting Fastener

WRITE TO ANY OF THE FIRMS LISTED TO LEARN HOW THIS REVOLUTIONARY NEW SCREW CAN SAVE YOU MONEY!

American Screw Company
Willimantic, Conn.

Blake & Johnson Company
Waterville 48, Conn.

Central Screw Company
Chicago, Illinois, and
Keene, New Hampshire

Continental Screw Company
New Bedford, Mass.

National Screw & Mfg. Co.
Cleveland, Ohio, and
Los Angeles, Calif.

Stronghold Pacific Corp.
Downey (Los Angeles), Calif.

Stronghold Screw Products, Inc.
Chicago, Ill.

Southington Hardware Mfg. Co.
Southington, Conn.

Townsend Company
New Brighton, Penna.

Please send copy of the new TWIN-fast bulletin.

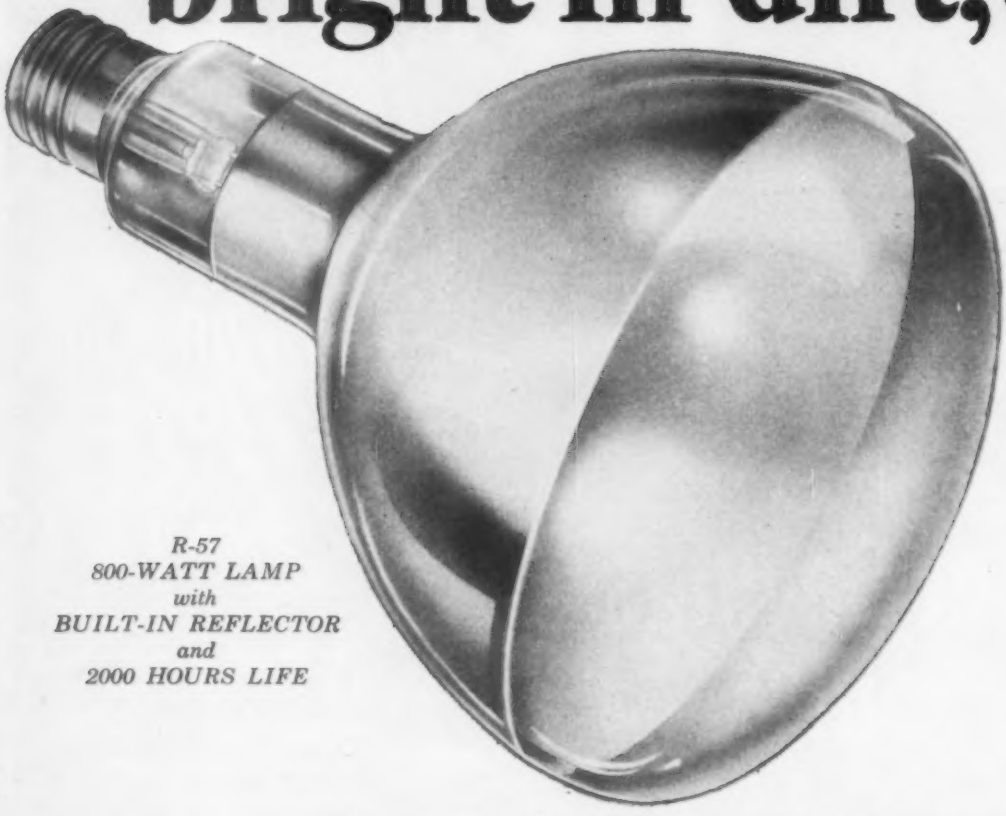
Name .....

Firm .....

Address .....

City..... Zone..... State.....

New Westinghouse bright in dirt, dust,



R-57
800-WATT LAMP
with
BUILT-IN REFLECTOR
and
2000 HOURS LIFE

Now you can get bright light *longer* in high-bay areas, no matter how dirty, dusty or smoky the conditions. The new Westinghouse R-57 800-watt standard voltage lamp, with a special silvery reflector actually built inside the bulb itself, prevents dirt particles from reducing its highly efficient light output. Dust settles only on the sides, not on the light-emitting face, so no cleaning is needed.

In addition, the new R-57 lamp lasts 1000 hours longer than conventional lamps and directs all the light on the area where it is needed. It is available in two light distribution types: narrow or wide beam.

For full information, contact the Westinghouse Lamp Sales Office nearest you. Or simply mail the coupon below.

LAMP DIVISION • WESTINGHOUSE ELECTRIC CORPORATION • BLOOMFIELD, NEW JERSEY

YOU CAN BE SURE... IF IT'S

Westinghouse

lamp stays and smoke



ACTUAL EFFICIENCY STUDIES PROVE new Westinghouse R-57 800-watt lamps out-live, out-perform conventional lamps. And their special design makes them ideal, especially for high-bay lighting in foundries, mills and other industries where dust is a problem.



R-57 WESTINGHOUSE LAMPS have built-in reflector, stay bright longer with no cleaning; give more efficient light at lower cost.

AGAIN WESTINGHOUSE MAKES HISTORY! Brings you complete coverage of Presidential Campaign from conventions to election over CBS television and radio . . . Also tune in WESTINGHOUSE STUDIO ONE every week over CBS-TV.

WESTINGHOUSE LAMP DIVISION DEPT. 531
BLOOMFIELD, NEW JERSEY

I'd like to have more information about the new Westinghouse R-57 800-watt lamp.

NAME.....

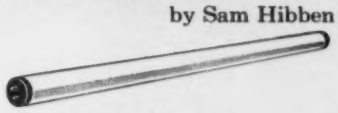
COMPANY.....

ADDRESS.....

CITY..... STATE.....

NEWS FROM WESTINGHOUSE, THE FASTEST-GROWING LAMP MANUFACTURER

by Sam Hibben



DID YOU KNOW? Owls see in near-darkness (not in total darkness, which almost never exists outdoors) because of the nature of their eyes and not the size of them. Because of two shapes of nerve-ends in the back of the eyeball, we say that humans have both "rod" vision and "cone" vision. The rods take over in dim light while the cones function in brighter light and give us color perception. Owls, cats, and other night-life have mostly or entirely "rod" vision, hence see moving objects in the dimmest lights, because apparently the nerve-rods work in bunches, thus multiplying the sensitivity.

ON THE OTHER HAND—While blackout driving proved possible but unsatisfactory in war-time, the effort of auto safety experts is to approximate daylight seeing conditions as nearly as possible—at least to make roadway objects visible as far ahead as it takes to stop your car—roughly 300 feet. Headlights today are so highly scientific that a pair of small 45-watt filaments illuminate a road area at least 20 times the largest living room. Their complexity is shown by the fact that Westinghouse Sealed Beam Headlamps, for instance, have 121 individual prisms, and all of these direct separate beams of light picked up from various parts of the reflector. I guess that makes them about 60 times as complicated as bi-focals, no?

SAFETY NOTE: If you ever blow a fuse in your car on a busy highway at night, illuminate the interior of your car with a flashlight; it makes the windows visible for a long distance, warns other motorists.

More next month.

Samuel G. Hibben

BUY NOW AND SAVE!
WESTINGHOUSE
FLUORESCENT LAMPS
STILL COST YOU LESS
THAN THEY DID
IN 1940, YET BURN
SEVEN TIMES LONGER!

aluminum

anodes for cathodic protection

babbitts

brasses and bronzes

die casting metals

lead and lead products

magnesium

nickel silver

plating anodes

When you need any non-ferrous metal...SEE FEDERATED FIRST

solders

Federated is non-ferrous metals headquarters

... for the widest variety of dependable products

... for practical and technical assistance.

type metals

zinc dust

Federated Metals Division

federated first in the non-ferrous field FMD

AMERICAN SMELTING AND REFINING COMPANY · 120 BROADWAY, NEW YORK 5, N. Y.



Beauty of mahogany mottle finish, fine details, scratch-resistance, light weight and strength at reasonable cost feature this cabinet for Philco radio-phono combination. It's **BAKELITE BM-780 General-Purpose Phenolic.**

Molded by The General Industries Co., Elyria, Ohio, and American Insulator Corp., New Freedom, Pa.



Strength and stability! This impeller for Sears, Roebuck's Kenmore Dishwasher is made of **BAKELITE Water-Resistant, Improved-Impact Phenolic BM-13080.** It stands up under whirling, scalding water, blasts of hot air, attack by soap and detergents.

Molded by Martindell Molding Co., Trenton, N. J.



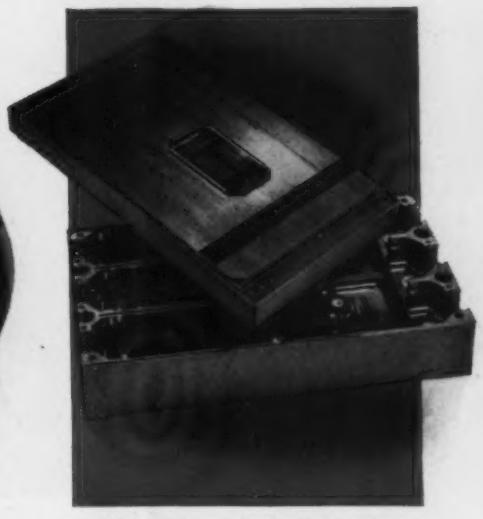
Service for six years without failure on New York's subways—despite weather extremes, moisture, vibration 20 hours a day! It's a subway shoe contact fuse housing that has been molded from **BAKELITE Medium Impact-Resistant Phenolic BM-1132.**

Made for The Horne Products Co. by Boonton Molding Co., Boonton, N. J.



High resistivity, low-loss factor, and dimensional stability are all built into these bases for diheptal tubes in television sets. They're **BAKELITE Natural "Low-Loss" Insulation Phenolic BM-16981.**

Made for Sylvania Electric Products Inc. New York, N. Y.



Intricate design and electrical resistivity—up to 600 volts AC, 250 volts DC, 10-600 amps.—are two of many features of this I-T-E Circuit Breaker case molded of black **BAKELITE General-Purpose Phenolic BM-2498.**

Made for I-T-E Circuit Breaker Co., Philadelphia, Pa., by American Insulator Corp., New Freedom, Pa.



Heat resistance, good electrical properties combine in this magneto distributor plate for heavy-duty automotive equipment. It's **BAKELITE BM-18425 General-Purpose Phenolic** with improved electrical insulation qualities.

Made for American Bosch Corp. by Specialty Insulation Mfg. Co., Hoosick Falls, New York.

Why Phenolic Plastics get the job!

The wide variety of BAKELITE Phenolic Plastics means that you can pick the *right* combination of properties to suit your particular purpose.

And with *all* BAKELITE Phenolic Plastics, you'll get the plus-factors of strength, beauty, economy, ease of production. Their resistance to chemicals and moisture, good electrical properties, long service life, and light weight are added features you can't afford to overlook.

Select the phenolic molding material that's best for your application...put it to work for your product. It means improved design, better performance, more saleability! Our Engineers will be glad to help you. Write Dept. DW-25.

BAKELITE
TRADE-MARK
PHENOLIC PLASTICS

TRADE MARK

BAKELITE COMPANY
A Division of
Union Carbide and Carbon Corporation
30 East 42nd Street, New York 17, N. Y.
In Canada:
Bakelite Company (Canada) Ltd., Belleville, Ont.

Another new belt t



The Curtis 600 abrasive belt grinder and polisher is made for either wet or dry grinding. It is adaptable for flat polishing on which a belt runs over a contact roll or platen. Insert shows work being fed into machine. For holding small pieces, a series of chucks are mounted across the conveyor belt or a magnet can be set under the conveyor belt.

finishing short-cut

...WITH BEHR-MANNING abrasive belts



■ And that's plenty fast in this Curtis conveyor grinder and polisher. Light sheet metal parts zip through at speeds up to 40 feet per minute. Half way through, they meet a fast-moving, quick-cutting Behr-Manning abrasive belt. In a split second this belt removes tool marks, leaving a uniform surface easily polished by succeeding grits.

Here's a machine that symbolizes the speed and cost-cutting factors of mass production. It is also representative of the many new developments in belt-grinding and polishing procedures; in many cases worked out in cooperation with Behr-Manning Abrasives Engineers. Check with your Behr-Manning representative —he'll keep you up to date on the latest belt-finishing short cuts.

No better belt is made for assembly-line production speed and economy. Every grain is anchored sharp-end up... by the Behr-Manning patented Electro-coating method ...and that's the way they stay! Special DURABONDED® process secures the grit in a double grip— keeps them in cutting position even when the going gets hot and heavy.

NEW INFORMATION ....on coated abrasive grinding and polishing tools and methods. For your free copy, write to Behr-Manning, Troy, New York or for export, Norton Behr-Manning Overseas, Inc., U. S. A., New Rochelle, N. Y. Address Dept. PU-5



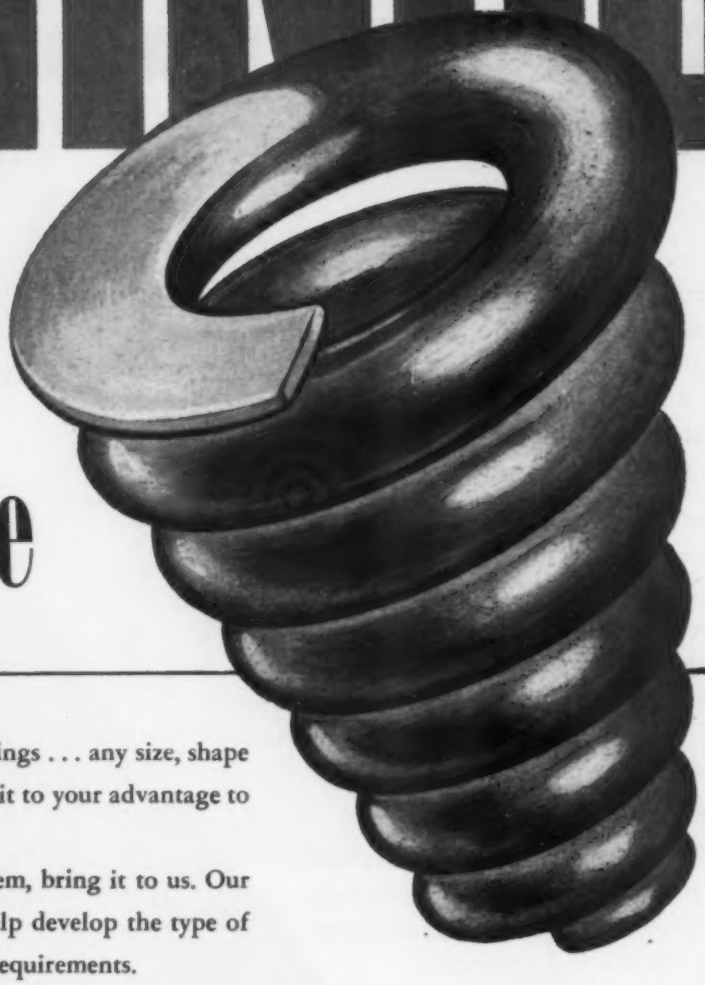
BEHR-MANNING

BEHR-MANNING CORPORATION
division of NORTON Company

- COATED ABRASIVES
- SHARPENING STONES
- PRESSURE-SENSITIVE TAPES

SPRINGS

by Wickwire



WHATEVER your needs in springs . . . any size, shape or design . . . you will find it to your advantage to check with Wickwire.

If you have a spring problem, bring it to us. Our engineers will be happy to help develop the type of spring that best meets your requirements.

Write for free copy of our booklet S-500, entitled "Springs and Formed Wires."

For additional information write to Sales & Engineering, 2 New Bond St., Worcester, Mass.

THE COLORADO FUEL & IRON CORPORATION – Denver, Colorado
THE CALIFORNIA WIRE CLOTH CORPORATION – Oakland, California
WICKWIRE SPENCER STEEL DIVISION – Atlanta, Boston, Buffalo, Chicago, Detroit, New York, Philadelphia

WICKWIRE SPRINGS
AND FORMED WIRES
PRODUCT OF WICKWIRE SPENCER STEEL DIVISION
THE COLORADO FUEL AND IRON CORPORATION

CF&I

OIC
FOUNDED 1883

THE
LONG LINE
OF VALVES



SIMPLIFY YOUR
PROCUREMENT
PROBLEMS

Phone the nearby OIC Distributor. The OIC Long Line offers the right valve for each job... prompt shipment... fast installation... dependable performance. Saves you time and money. The Ohio Injector Company, Wadsworth, Ohio.

OIC
FOUNDED 1883

VALVES
FORGED AND CAST STEEL · IRON · BRONZE



YOU GET MORE-

IN STEEL CONTAINERS MADE BY CONTINENTAL..

you get the *engineering skill* of a *full-line* container manufacturer

The sleek, streamlined appearance of Continental steel containers tells you that they were designed by men with a packaging expert's eye for good looks, as well as an engineer's interest in utility.

And the way these containers take the battering and bouncing of transcontinental shipping is evidence of the solid durability that has been designed into them.

So even though you may never need to call upon our packaging engineers for help with a special packaging problem, you get the benefits of their designing and production skill in every Continental steel container you use.

Included in the Continental line are lug cover pails, utility cans, flaring pails, and closed head drums in light and heavy gauge. Chances are one of them is just right for your product. We'll be glad to talk over your packaging problem, and suggest a container exactly suited to your needs.

CONTINENTAL CAN COMPANY

CONTINENTAL CAN BUILDING

100 East 42nd Street New York 17, N. Y.

Eastern Division: 100 E. 42nd St., New York 17 • Central Division: 135 So. La Salle St., Chicago 3 • Pacific Division: Russ Building, San Francisco 4

STOP RUST!

with RUST-OLEUM



Every *rustable* metal surface needs **RUST-OLEUM**—the *exclusive* formula *proved* in all types of industry, at sea, above and below ground for over 25 years! Goes on easily by brush, dip or spray . . . dries to a *firm, elastic, decorative* finish that resists salt air, rain, snow, heat, fumes, smoke, etc. **RUST-OLEUM** may be applied *directly over surfaces already rusted without removing all the rust!* Simply scrape and wire-brush to remove rust scale and loose particles. Sandblasting and other costly preparations are not usually required. So easy to use that one man often does the work of two! Specify **RUST-OLEUM** to your contractor, architect or maintenance department. Prompt delivery from Industrial Distributor stocks in principal cities.

RUST-OLEUM CORPORATION
2435 Oakton Street • Evanston, Illinois

RUST-OLEUM BEAUTIFIES AS IT PROTECTS — AVAILABLE IN ALL COLORS, ALUMINUM AND WHITE

FREE SURVEY: Place your rust problems in the hands of a **RUST-OLEUM** specialist. He will conduct a survey, including *applications, specific tests,* and *recommendations. No cost or obligation.* See Sweets for catalog and nearest **RUST-OLEUM** distributor, or write for literature on your company letterhead.

CLIP THIS COUPON TO YOUR LETTERHEAD MAIL TO:

RUST-OLEUM CORPORATION
2435 Oakton Street • Evanston, Illinois

- ☐ Have a Qualified Representative Call.
- ☐ Full Details on FREE Survey.
- ☐ Complete Literature.
- ☐ Nearest **RUST-OLEUM** Source.



Husky haulers on the steel highways

Diesel-electric locomotives are marvels of speed and pulling power. A dozen years ago less than a thousand were in use. On America's railroads today, some 19,000 diesel units are hauling more than half the nation's passengers and freight.

Powerful storage batteries are required to start these giants of the rails. In the passenger cars, other batteries provide power for lighting and air-conditioning. And in every department of railway signaling and communications, storage batteries are vital equipment. For all of these important services, thousands of Exide Batteries are being used.

There are Exide Batteries for every storage battery need. They supply motive power for battery-electric industrial trucks and mine haulage units that help to speed production and cut handling costs. Exide Batteries are used extensively by telephone, telegraph and cable companies...radio and television stations ...electric light and power plants.

They perform many vital services on air-transport and government planes...on ocean liners, freighters, fishing craft and pleasure boats. And on millions of cars, trucks, tractors and buses they daily prove that "When it's an Exide, you start."

Exide
BATTERIES

"Exide" *Reg. Trade-mark U.S. Pat. Off.*

1888...DEPENDABLE BATTERIES FOR 64 YEARS...1952

THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia 2 • ***Exide Batteries of Canada, Limited, Toronto***



Wins every time

You can't deal yourself a better hand than U.S. Security. It's the completely dependable tape for electrical or general-purpose jobs. Security has no pinholes to cause leaks, will not dry out. It has high-dielectric strength, is straight-tearing, non-ravelling, will never let you down. ALWAYS Specify U.S. Security.

U.S. Security *Rubber* Tape is unbeatable for perfect splicing when used with U.S. Security *Friction* Tape.

QUALITY PRODUCTS OF

U.S.RUBBER
SERVING THROUGH SCIENCE

UNITED STATES RUBBER COMPANY

TAPE DEPARTMENT • ROCKEFELLER CENTER, NEW YORK 20, N. Y.

NEW

NEW from SKF

the HESS-BRIGHT "SY"

UNIT PILLOW BLOCK

A new Unit Pillow Block, designed by SKF, to meet tomorrow's needs of modern industry.

Here are the design features:

- SKF Red Seal, made of DuPont Fairprene, retains lubricant. Wiping action of the seal against the inner ring is practically frictionless.
- Rotating flingers exclude dirt.
- Set screws for ease of installation.
- Spherical outer ring compensates for initial misalignment.
- Alemite fitting for re-lubrication.
- Interchangeability with existing installations made possible by bolt hole spacing and center height features.
- Shaft diameters 1 3/16" to 2 3/16".



From now on, the name to remember in Unit Pillow Blocks is HESS-BRIGHT "SY"—manufactured in our plants, to the same high quality standards as all SKF products. Ask your SKF Distributor to show you the HESS-BRIGHT "SY"; or write SKF direct for complete information on this *newest* Unit Pillow Block.

SKF INDUSTRIES, INC., Phila. 32, Pa. —*manufacturers of* **SKF** *and* HESS-BRIGHT *bearings.*

7322

Detailed illustration of rotating flinger and RED Seal—the extremely light tension contact seal.

SKF®
BALL AND ROLLER BEARINGS

IN EVERY INDUSTRY, SKF Puts The Right Bearing In The Right Place



Investigate the many advantages of using

the Wagner Part-Winding Increment Motor and Starter Combination

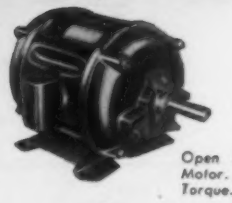
The Wagner part-winding increment motor and starter combination provides an economical method of starting polyphase squirrel-cage motors when reduced current draw at start is required. No auto-transformers or resistors are necessary.

Wagner polyphase motors for part-winding starting, both normal and high torque, are wound with two circuits in parallel. The magnetic type increment starter has two magnetic contactors. When the first contactor closes, the line is connected to one group of the motor windings and a pneumatic timer is started. After the desired time interval, the pneumatic timer closes the second magnetic contactor which connects the line to the other part of the motor winding. Using this motor and starter combination, the current drawn from the line is about 60 percent of the normal locked current of the motor. It has the advantage that the current taken from the line is not broken during the starting period, as is the case when auto-transformers or compensator-type starters are used.

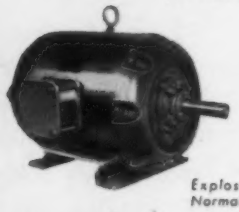
Motors with manual type starters are also available.



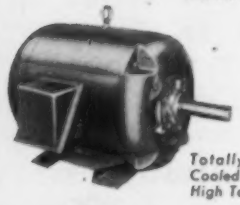
This magnetic part-winding increment starter can be furnished in combination with any of these Wagner Motors.



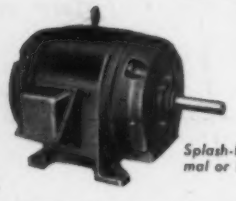
Open General Purpose Motor. Normal or High Torque.



Explosion-Proof Motor. Normal or High Torque.



Totally-Enclosed Fan-Cooled Motor. Normal or High Torque.



Splash-Proof Motor. Normal or High Torque.

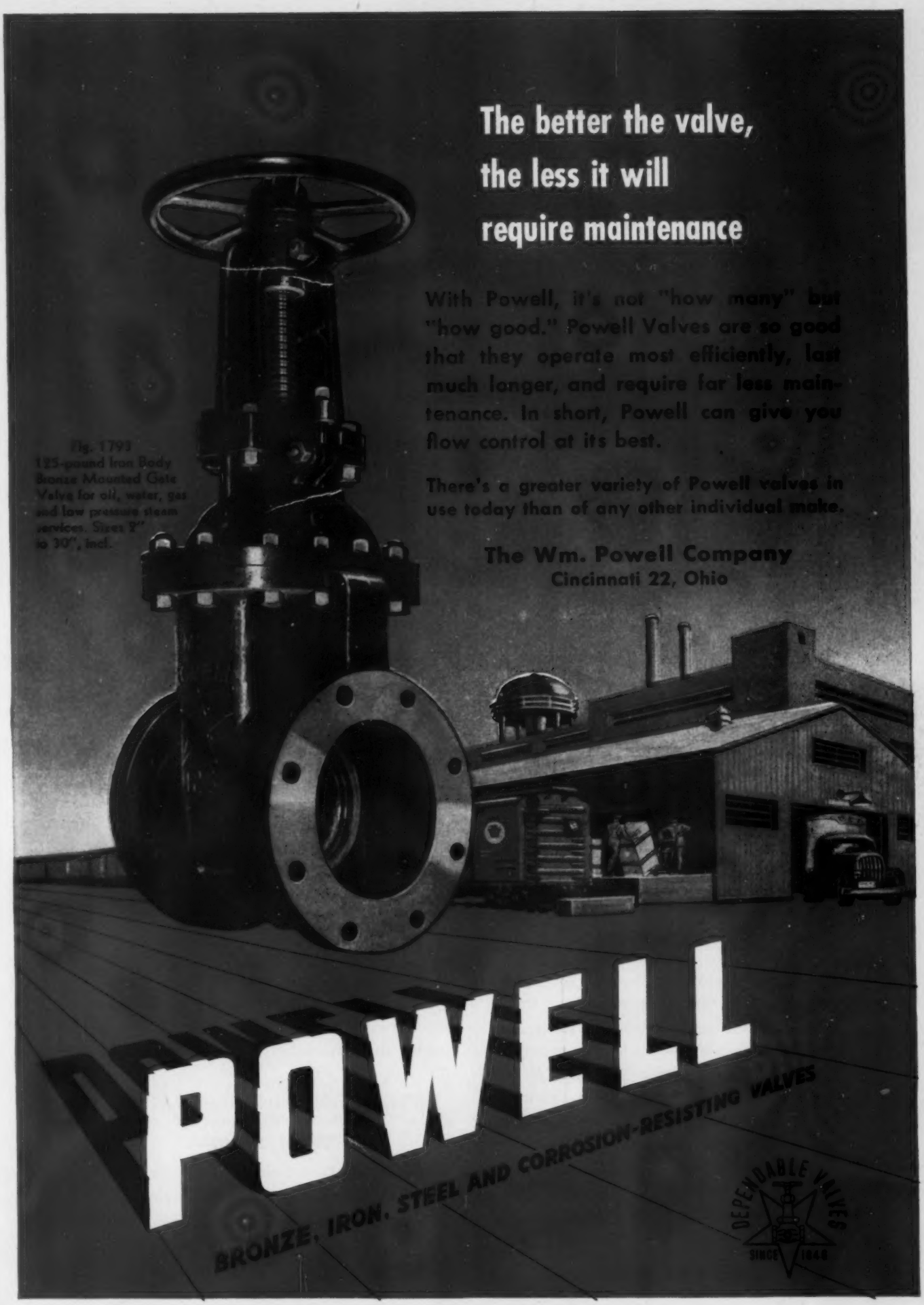
WAGNER ELECTRIC CORPORATION
6360 Plymouth Ave., St. Louis 14, Mo., U.S.A.

Wagner Electric Corporation
EST. WE 1891

ELECTRIC MOTORS • TRANSFORMERS • INDUSTRIAL BRAKES
AUTOMOTIVE BRAKE SYSTEMS — AIR AND HYDRAULIC

BRANCHES IN 32 PRINCIPAL CITIES

MM-9


The better the valve, the less it will require maintenance
With Powell, it's not "how many" but "how good." Powell Valves are so good that they operate most efficiently, last much longer, and require far less maintenance. In short, Powell can give you flow control at its best.
There's a greater variety of Powell valves in use today than of any other individual make.
The Wm. Powell Company
Cincinnati 22, Ohio
Fig. 1793
125-pound Iron Body Bronze Mounted Gate Valve for oil, water, gas and low pressure steam services. Sizes 2" to 30", incl.
POWELL
BRONZE, IRON, STEEL AND CORROSION-RESISTING VALVES
DEPENDABLE VALVES
SINCE 1846

It Subtracts...
so Pilots can
"add up the score"



Everyone Can Count on VEEDER-ROOT

Yes, jet pilots count on this interesting instrument to tell them how much fuel is left . . . when they'd better "hit for home." And in the same way, it counts rounds of ammunition remaining in the plane's machine guns, the number of film-exposures remaining in aerial cameras, etc., etc. So you can see how one type of Veeder-Root Counter can come up with many answers to many problems. And within the literally *infinite* scope of the counting process, there may well be some badly needed answers we can work out for *you* . . . if your work is badly needed for defense. Write.

VEEDER-ROOT INCORPORATED
"The Name That Counts"
HARTFORD 2, CONN.

Chicago 6, Ill. · New York 19 · Greenville, S. C.
Montreal 2, Canada · Dundee, Scotland

Offices and agents in principal cities

"Counts Everything on Earth"

DEPENDABLE POWER



FOR DRILLING HOLES IN STEEL . . . WOOD . . . MASONRY

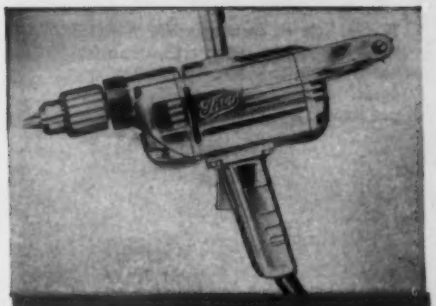
Standard in industry since portable power drills were first developed, the name THOR has stood for DEPENDABLE POWER for over 59 years!

The new Thor "Silver Line" Electric Drills are available in 39 sizes, styles and speeds to meet every shop and field requirement. YOU NAME IT, THOR HAS IT . . . .

Improved motor . . . all ball-bearing construction . . . die-cast precision-fitted housings . . . PLUS an endless list of "extras"—these are the penny-savers and dollar-savers that make Silver Line Drills your best buy today!

Factory branch sales and service in principal cities. Free 1952 catalog upon request. Independent Pneumatic Tool Company, Aurora, Ill.

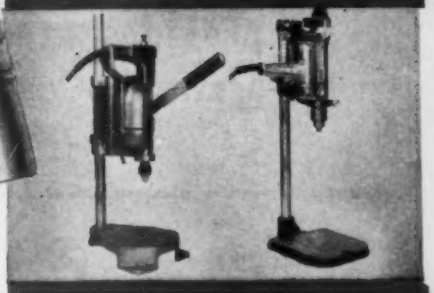
Thor PORTABLE POWER TOOLS



MOST POWERFUL ½" DRILL ON THE MARKET—Mining companies use this tool with carbide bits to drill 1¼" holes in *solid rock!*



THOUSANDS OF THOR DRILLS in use today in any industry you can name — selected by purchasing agents and tool superintendents for DEPENDABLE POWER!



DRILL STANDS for all sizes convert portable drills to stationary use as powerful-leverage drill presses.



THOR SERVICE STATIONS IN PRINCIPAL CITIES make fast, factory-standard repairs when tool parts wear.

GET IT FROM YOUR JOBBER

IMPACT WRENCHES • SAWS • HAMMERS • DRILLS
AUTOMOTIVE VALVE SHOP TOOLS • SANDERS • POLISHERS
SCREWDRIVERS • NUT SETTERS • SANDERS • NIBBLERS

BUY IT FOR YOUR DISTRIBUTOR

The original, and standard, Atlas Ply-Fold Crate. Many thousands have been used for shipping air conditioners, stoves, desks, compressors, washing machines, etc.



Four-piece Atlas Ply-Fold Crate, designed for the shipping of heavy articles—where unusual stacking strength and a completely closed container are required.



Open-end, four-piece Atlas Ply-Fold Crate, with unusual stacking strength and serviceability—for use wherever completely enclosed containers are not required.

One of these four

ATLAS "PLY-FOLD" CRATES

provides exactly the shipping protection *your product* requires





Atlas Ply-Fold Crate, similar to that at the left. However, this container is fitted with backbars for the shipment of articles requiring backbar assembly.

It is our privilege to supply plywood containers to the leaders of a great many industries—for the domestic or export shipment of a very wide range of products. Some are light, some are heavy; some are small, some are very large.

Four of the most important types of Atlas Plywood Crates are pictured above. Each of these is delivered with the components partially assembled—which means ease and economy in assembly. All feature light-weight construction, minimum displacement, minimum container cost, minimum shipping cost.

For the past 22 years we have maintained—in Lawrence, Massachusetts—what is probably the most complete Container Laboratory in this country. Every possible test for stress, strain, durability, weight and final cost is constantly applied to assure the safe delivery of your product. Periodically this Laboratory tests selected samples of all containers made for each customer in any of our plants. Here is complete Quality Control on your containers *at no extra cost.*

We invite the opportunity to discuss your needs for plywood containers or crates—in any quantity, large or small—on any schedule, delivered anywhere. Kindly address your letter to Department 73.

MANUFACTURING PLANTS

Richford, Vt. — Plymouth, N. C.
Morrisville, Vt. — Williamston, N. C.
Greenville, Me. — Munising, Mich.
Howland, Me. — Newberry, Mich.
Houlton, Me. — Grayling, Mich.
Patten, Me. — Rhinelander, Wisc.

DISTRIBUTING PLANTS

Lawrence, Mass. — Phillipsdale, R. I.
Southbridge, Mass. — Camden, Ohio

CONTAINER DIVISION

ATLAS PLYWOOD CORPORATION

SALES-SERVICE OFFICES

Boston, Mass. — Pittsburgh, Pa.
New York, N. Y. — Springfield, Ohio
Chicago, Ill. — Cleveland, Ohio
Dayton, Ohio — Goldsboro, N. C.
Evansville, Ind. — Gladstone, Mich.

DISTRIBUTING PLANTS

Passaic, N. J. — Oneida, N. Y.
Evansville, Ind. — Lockport, N. Y.

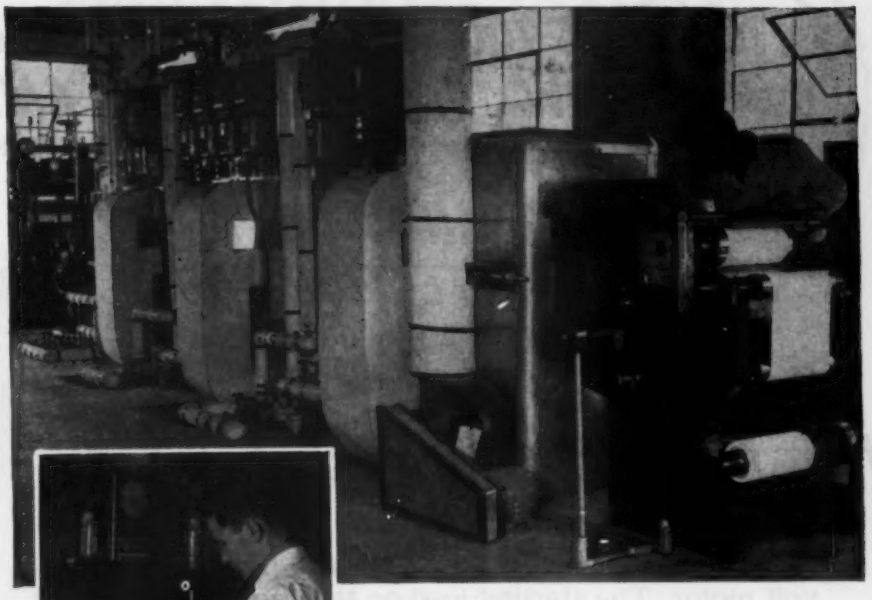
STATLER BUILDING, BOSTON 16, MASS. • Telephone: Hancock 6-0016 • Teletype: BS-644

Men who design, engineer and buy America's products rely on..and use..National Laminated Plastics because..



"At National, engineering research is of prime importance. We believe only through it and by large investment in it are we able to: *first*, provide industry with dependable laminated plastics for the efficient production of today's products which were developed yesterday; *second*, give practical assistance to the design engineer who is creating today, new, better products for tomorrow."

J. Warren Marshall, **President**
National Vulcanized Fibre Co.





At the Proving Grounds

Here is the Phenolite Pilot Plant—coating machine and press in miniature—where under exact commercial production conditions, testing and experimental work are conducted on thermo-setting products requiring special resins or base materials. This is representative of the research engineering facilities National provides in which over a million dollars are invested.



Stiegler's Fungus House

Frederick L. Stiegler directed the pioneering research that came up with a fungus-resistant vulcanized fibre, satisfactory for extended exposure to moist, warm air. This new grade of National Vulcanized Fibre has important use in refrigerators and products that must perform in fungus-generating climates.

National Laminated Plastics
nationally known — nationally accepted

NATIONAL VULCANIZED FIBRE

A tough horn-like material with high dielectric and mechanical strength. Excellent machinability and forming qualities, great resistance to wear and abrasion, long life, lightweight. Sheets, Rods, Tubes, Special Shapes.

PHENOLITE Laminated PLASTIC

Phenolite possesses an unusual combination of properties—a good electrical insulator, great mechanical strength, high resistance to moisture; ready machinability, lightweight. Sheets, Rods, Tubes, Special Shapes.

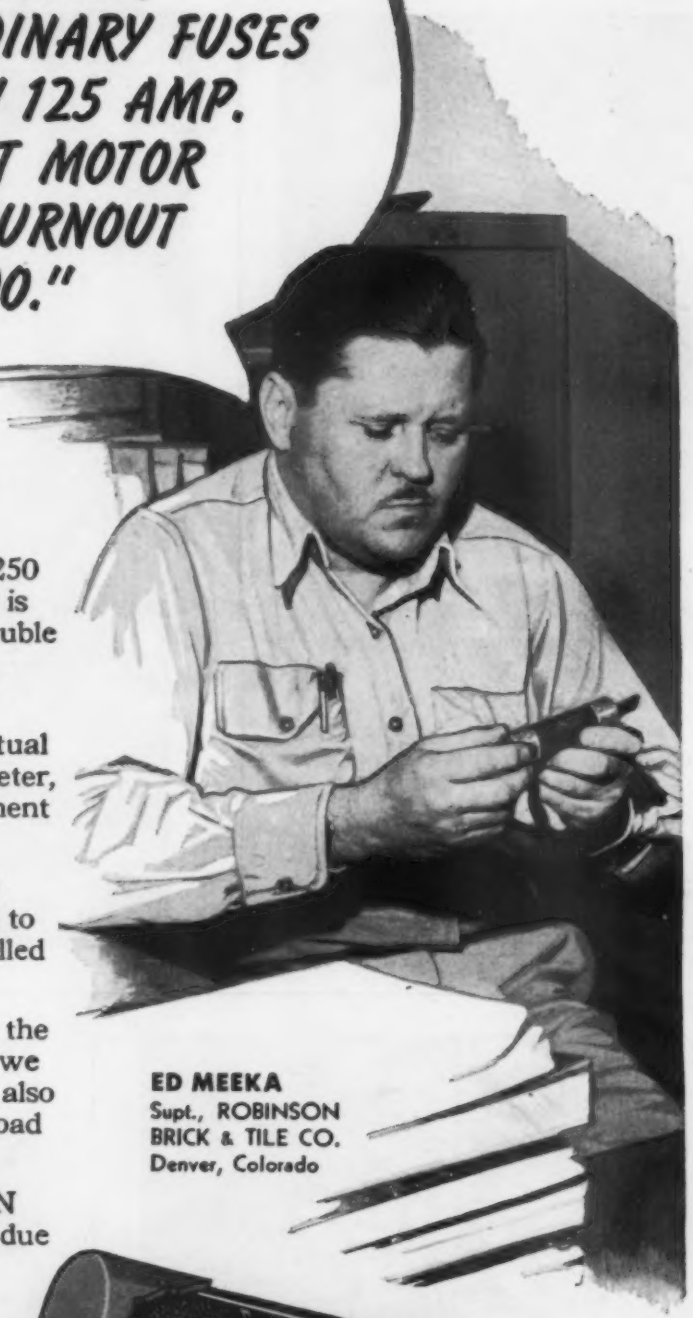
Just published! National Laminated Plastics Handbook.
Write for copy. Your company letterhead please.

National Vulcanized Fibre Co.

Wilmington *Offices in* Delaware *Principal Cities*

Since 1873

"STARTING LOAD ON OUR 40 H. P. CRUSHER MOTOR CAUSED 400 AMP. ORDINARY FUSES TO BLOW . . . BUT NOW 125 AMP. FUSETRON FUSES LET MOTOR START AND GIVE BURNOUT PROTECTION TOO."



Mr. Meeka explains . . .

"We have a crusher driven by a 40 h.p. 250 volt motor. The starting load on this motor is often quite heavy and gave us no end of trouble by causing the 400 ampere fuses protecting the circuit to blow.

"Some months ago, after checking the actual running current of the motor with an ammeter, we decided to see if FUSETRON dual-element Fuses could live up to their claims.

"The ammeter reading indicated that 125 ampere FUSETRON Fuses should be used to give motor-running protection. So, we installed this size.

"Were we surprised—they not only hold the starting current of the crusher motor—but we have the satisfaction of knowing the motor also has burnout protection to back up the overload relays in case they should ever fail.

"Not once since we installed FUSETRON Fuses have we lost a moment's production due to a fuse blowing needlessly."

ED MEEKA
Supt., ROBINSON BRICK & TILE CO.
Denver, Colorado



FUSETRON
TRUSTWORTHY NAMES IN ELECTRICAL PROTECTION
BUSS

(FUSETRON is a trade mark of the Bussmann Mfg. Co., Division of McGraw Electric Co.)

"FUSETRON FUSES NOT ONLY ELIMINATE USELESS SHUTDOWNS - THEY GIVE YOU 10 POINT PROTECTION."



1. Protect against short-circuits.*
2. Protect against needless blows caused by harmless overloads.
3. Protect against needless blows caused by excessive heating—lesser resistance results in much cooler operation.
4. Provide thermal protection — for panels and switches against damage from heating due to poor contact.
5. Protect motors against burnout from overloading.
6. Protect motors against burnout due to single phasing.
7. Give DOUBLE burnout protection to large motors — without extra cost.
8. Make protection of small motors simple and inexpensive.
9. Protect against waste of space and money — permit use of proper size switches and panels
10. Protect coils, transformers and solenoids against burnout.

*Fusetron Fuses have high interrupting capacity as shown by tests of the Electrical Testing Laboratories of New York City in December 1947.

DON'T RISK LOSSES

One **needless** shutdown . . .
One **lost** motor . . .
One **destroyed** switch or panel
One **burned out** solenoid . . .

May cost you far more than replacing every ordinary fuse with a Fusetron dual-element Fuse.

MAIL THE COUPON NOW for complete information about the All-Purpose Protection of FUSETRON Dual-Element FUSES.

BUSSMANN Mfg. Co. (Division of McGraw Electric Co.)
University at Jefferson, St. Louis 7, Mo.

Please send me complete facts about FUSETRON dual-element Fuses.

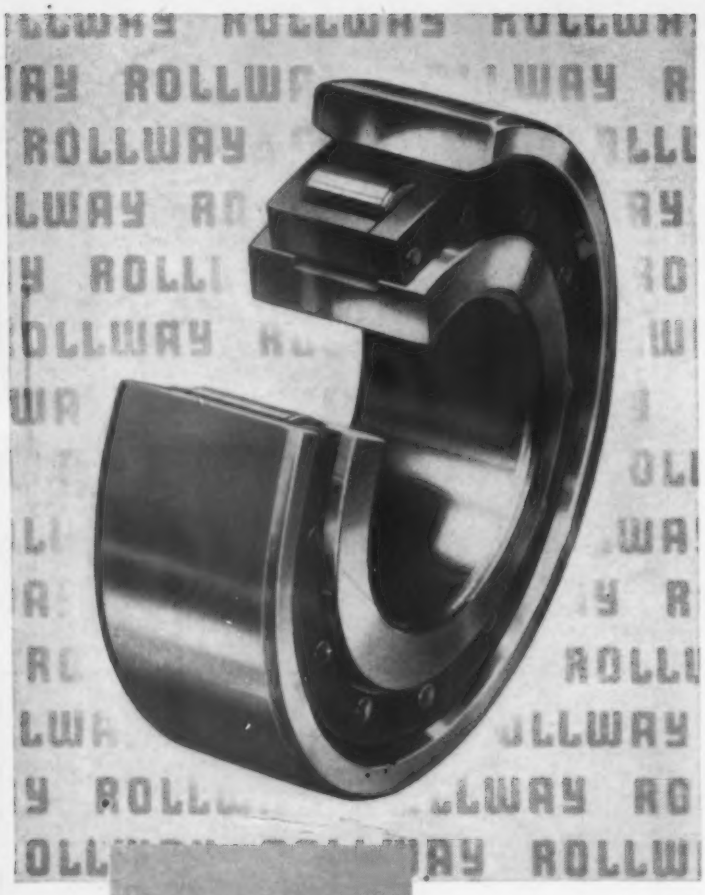
*Name*_____

*Title*_____

*Company*_____

*Address*_____

*City & Zone*_____ *State*_____ 552



In-Built Trueness...

basis for longer life and lower cost!

Unwavering right-line rotation . . . that's the immediate result of in-built trueness in Rollway roller bearings. There's no skew, no side-shock, no roller-end-drag. Internal forces are balanced by matchless precision in related parts. Bores are precisely cylindrical. Separator surfaces are rigorously parallel. Roller ends are truly square on every diameter. And bearing surfaces match both the separator slots and the roller races.

Over the long run, life expectancy is greatly extended. Cost per unit of time falls sharply.



Rollways Roll Right Because They're Made Right

Let our engineers help you to select the Rollway bearing that is exactly right for your application. Our years of specialized bearing experience and complete engineering and metallurgical service are always at your command. No cost. No obligation. Just write or wire.

ROLLWAY BEARING CO., INC.
Syracuse 4, N. Y.

SALES OFFICES

SYRACUSE	DETROIT
PHILADELPHIA	CLEVELAND
BOSTON	LOS ANGELES
PITTSBURGH	HOUSTON

ROLLWAY BEARINGS

Complete Line of Radial and Thrust Cylindrical Roller Bearings

GENERAL ELECTRIC

Announces

A COMPLETELY NEW FRACTIONAL HORSEPOWER MOTOR



Modern in Appearance...

AND...



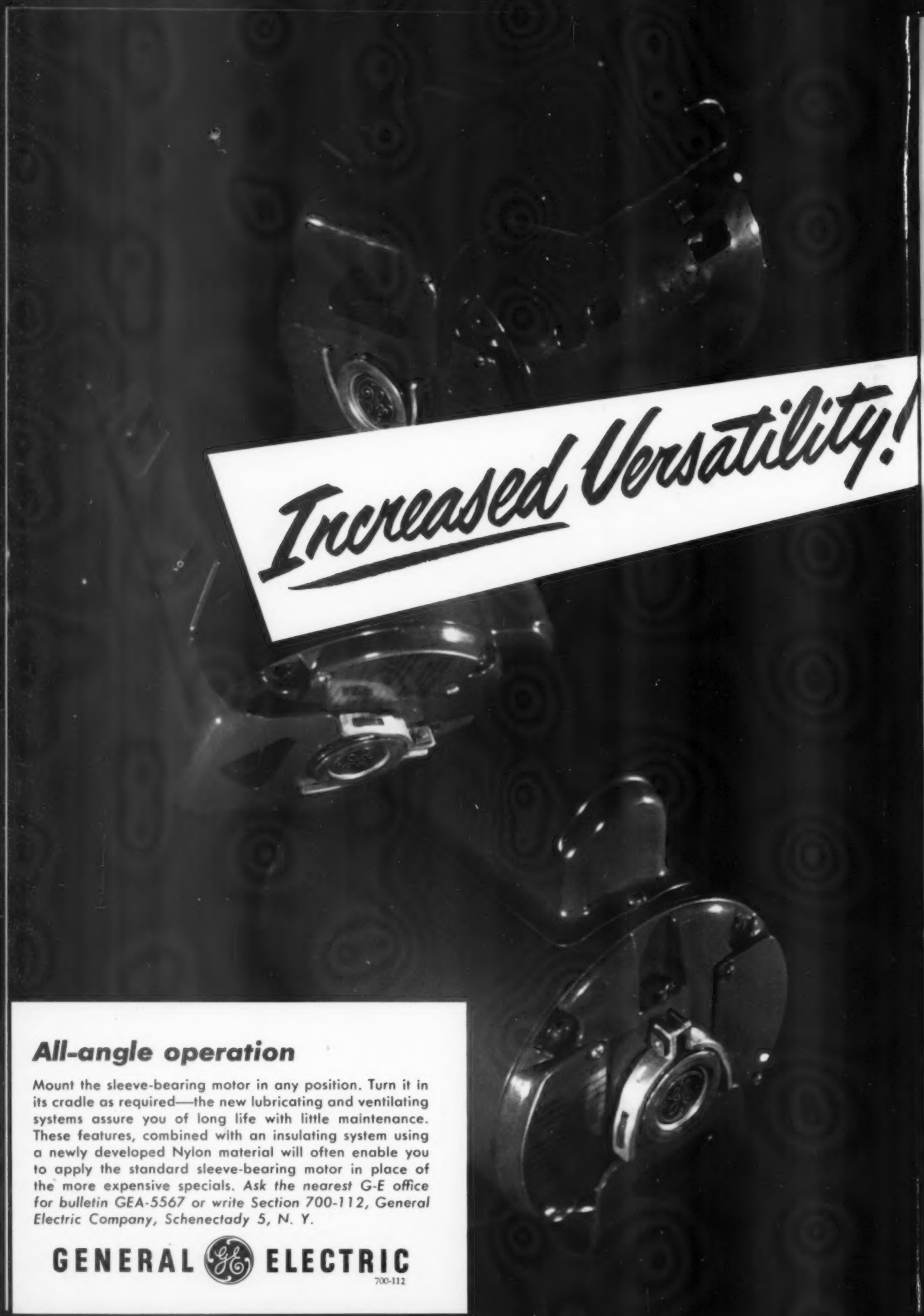
Compare the old and the new

The new Form G General Electric f-hp motor requires less space—less space on driven machines—less space in storage and shipping. An entirely new ventilating system and more compact design, combined with strong but lighter metals, reduces the over-all dimensions. Throughout the line these motors are smaller, easier to mount.



Up to 50% lighter

Reduce your shipping costs with this new, lighter weight G-E motor. In each horsepower rating, whether it's the standard dripproof or the totally enclosed fan-cooled motor you require, you'll find the weight drastically reduced. All ratings conform to NEMA standards. Improved design, new materials—the result of General Electric research—have tipped the scales in your favor.

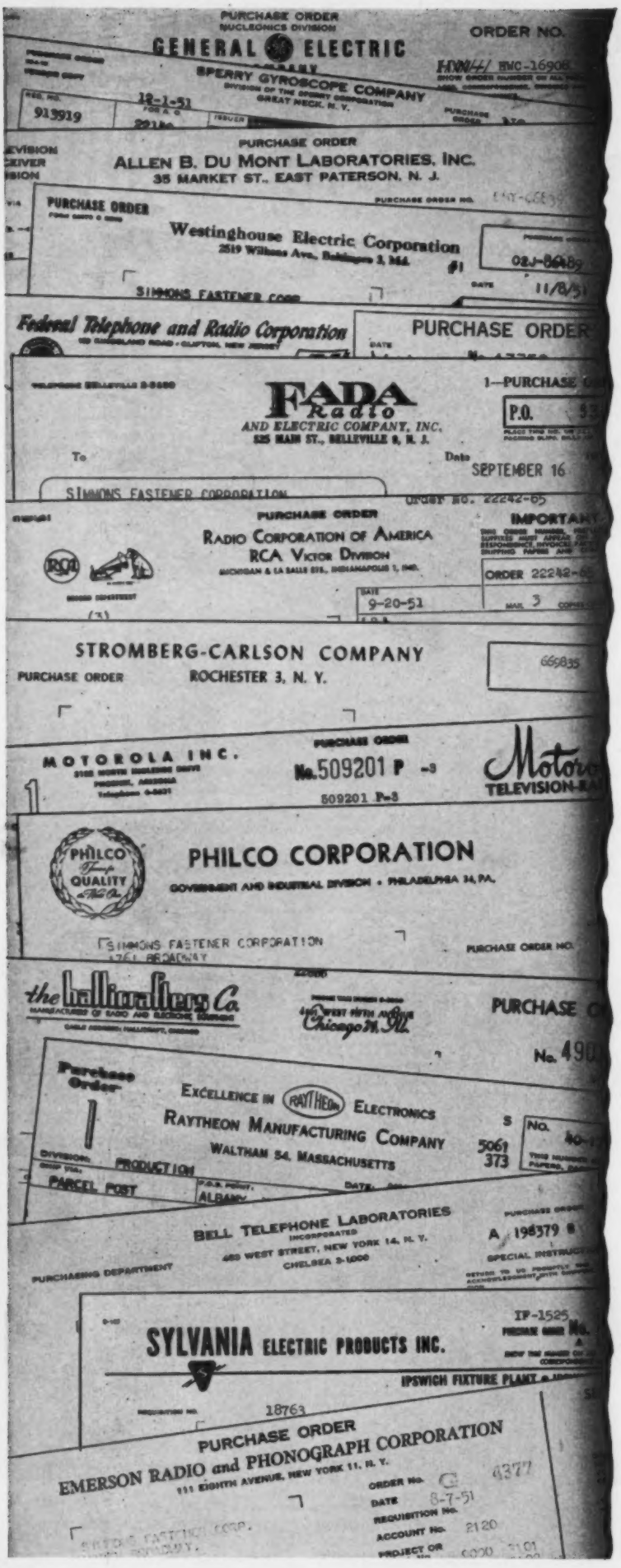


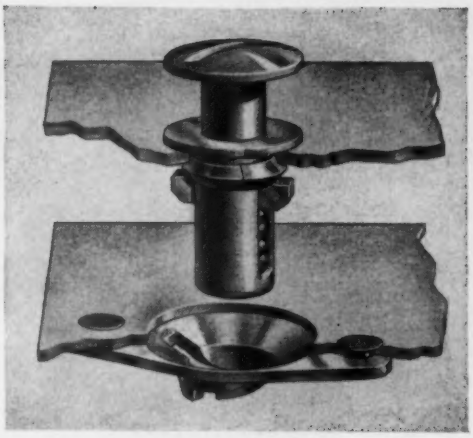
All-angle operation

Mount the sleeve-bearing motor in any position. Turn it in its cradle as required—the new lubricating and ventilating systems assure you of long life with little maintenance. These features, combined with an insulating system using a newly developed Nylon material will often enable you to apply the standard sleeve-bearing motor in place of the more expensive specials. *Ask the nearest G-E office for bulletin GEA-5567 or write Section 700-112, General Electric Company, Schenectady 5, N. Y.*

GENERAL ELECTRIC

700-112





For Electronics:

Faster Assembly... Better Design

Why do leading electronic manufacturers order and re-order Simmons' QUICK-LOCKS in quantity? For good dollar-wise reasons:

IN ASSEMBLY—

- No special tools are needed for installation.
- Flexible mounting takes care of curved sheets and misalignment.
- Various material thicknesses can be handled.

IN DESIGN—

- Initial loads taken by helical spring. Increased loads carried on solid supports.
- 90-deg. rotation locks and unlocks fastener.
- Stud is self-ejecting when unlocked.
- Stud is self-aligning. Makes mounting and demounting detachable panels simple.

QUICK-LOCK can help reduce your assembly costs and can add unusual advantages to your designs. Send for data and samples today.

SIMMONS FASTENER CORPORATION
1743 No. Broadway, Albany 1. New York

Simmons

QUICK-LOCK
LINK-LOCK
SPRING-LOCK
ROTO-LOCK

Fasteners that improve products and reduce assembly costs.

HOW TO GET THE MOST OUT OF THE 18,000,000



Here are the actual test results on a typical production run at Hubbard & Company. At left is the finished washer ready for delivery. Middle picture shows the washer after the 90° twist test required by specifications. As shown at the right, Hubbard spring washers will consistently withstand a twist test far greater than required.





At Hubbard, this variable speed conveyor removes spring washers from the quench tank on a precise time cycle. Here, the washers enter a low temperature rotary furnace.



This rotary furnace removes the oil and assures desired temperature control prior to batch tempering.

LEAN ALLOY STEEL YOU'RE GETTING

Carilloy spring washers used without one reported failure!

thanks to U·S·S metallurgical assistance

HUBBARD & COMPANY, Tool Division, Pittsburgh, Pa., is a major producer of rail joint spring washers. These vital washers are used on the bolts of the joint bars that connect sections of railroad rails. They prevent the bars from "freezing" and interfering with expansion and contraction of the rails. Battering and wear at the rail ends is reduced due to the high bolt tension caused by the reactive pressure of these CARILLOY steel washers.

You could hardly find worse service conditions. Temperatures often vary 50, 60, even 70 degrees in a single day. And, because they are part of the rail joint, these washers must cushion the wheel load shock of trains that every day become longer, heavier and faster.

Some time ago, our metallurgists got together with Hubbard engineers and came up with a vastly improved method of heat treating these alloy steel washers. This heat treating system has achieved uniform heating, precisely timed quenching and fool proof tempering. Result: a higher quality product, more uniform than ever before.

HERE'S THE COMPLETE STORY:

"Failure reports have stopped"

says B. J. McTighe, Superintendent, Tool Division, Hubbard & Company



"Since installing our new heat treating system, we've sold about 18,000,000 spring washers without one reported failure. The improved heat treatment, suggested by United States Steel, has resulted in more uniform structure, better mechanical properties and a retention of spring properties under all conditions. We can meet specifications even if alloy steel restrictions become more rigid in the future.

"These spiral spring washers, made from CARILLOY 9260 steel, are hardened to an average of 49/52 Rockwell C. Despite this high hardness, the washers easily meet the specification requiring a 90° cold twist in the fully heat treated condition. Our own shop control limits are even more severe than this to make sure that we meet and exceed railroad standards.

"These washers have exceptionally high and uniform reaction values. After they are compressed, these washers return to their original contour while retaining their spring properties. We think the superior performance is due to our improved heat treating system."

If you're having trouble handling lean alloys, we may be able to suggest heat treatment methods that will give you more uniform hardness, less rejects and less retreatments. Simply call or write our nearest district sales office.

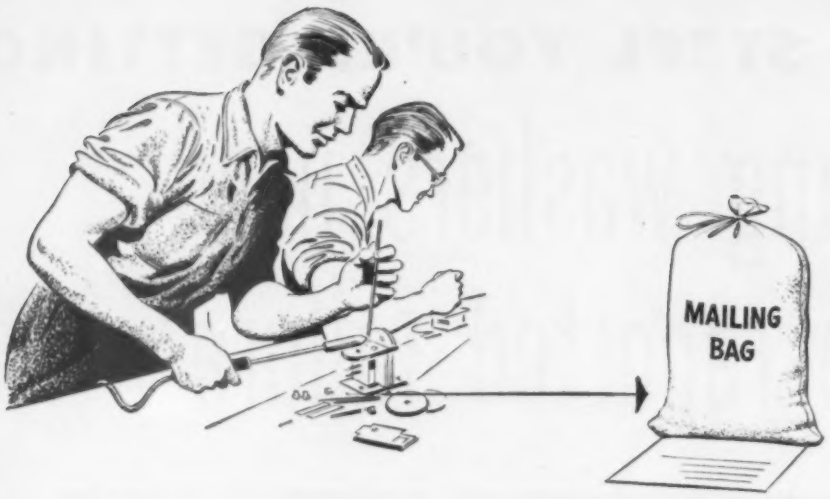
U·S·S Carilloy Steels

USS

UNITED STATES STEEL COMPANY, PITTSBURGH • COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO
TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA. • UNITED STATES STEEL SUPPLY DIVISION, WAREHOUSE DISTRIBUTORS, COAST-TO-COAST
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

2-358

UNITED STATES STEEL

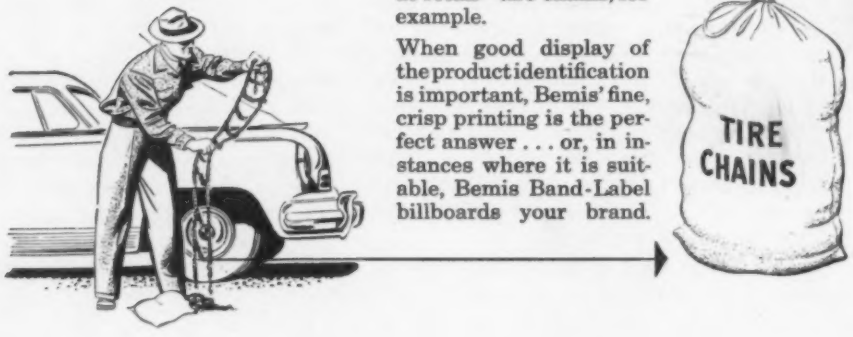


From tiny parts bags and sample bags to 9-foot cotton pick sacks, Bemis cotton bags meet every industrial and commercial cotton bag need. Bemis is also a major supplier of bag-closing thread and twine.

You Can Package These Products

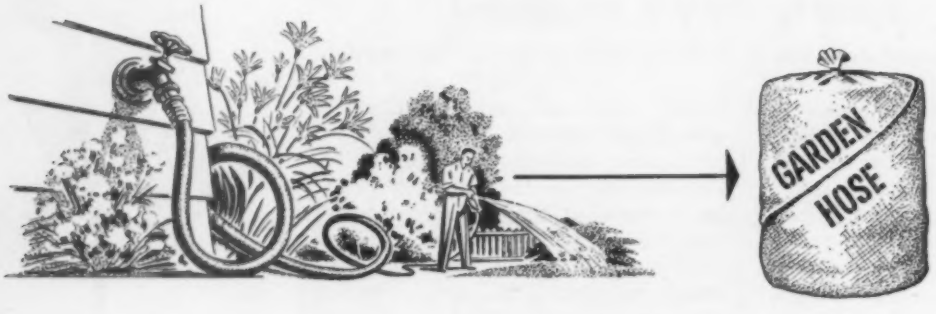
(and 1001 others)

Quicker, Better, Cheaper in a Bemis Bag



Bemis cotton bags are the ideal containers for much merchandise sold at retail—tire chains, for example.

When good display of the product identification is important, Bemis' fine, crisp printing is the perfect answer . . . or, in instances where it is suitable, Bemis Band-Label billboards your brand.



Bemis TITE-FIT TUBING, a tubing with "two-way stretch," is ideal for the fast, economical packaging of many large or odd-shaped products, such as garden or industrial hose, rolled rugs and carpets, baled goods, etc.

Need a Standard Package . . . or Something Special?

Bemis bags and other Bemis products meet an astounding number of requirements . . . and new uses are continually coming to light. There is probably a Bemis product suitable for your needs. Or, you may want Bemis specialists to create a new package, or to advise you on packaging methods.

Bemis

BEMIS BRO BAG COMPANY

General Offices—St. Louis 2, Mo.

Offices In Principal Cities

Here are some of the other Bemis Products serving Industry and Commerce . . .

Paper Bags	Plastic Bags
Burlap Bags	Canvas Products
Waterproof Laminated Bags	Paper Specialties

Bag-Closing Thread and Twine

IS YOUR PROBLEM MORE ECONOMICAL OPERATION IN YOUR SMALL ENGINES?

Specify

BENDIX

THE MOST TRUSTED NAME IN MAGNETOS

- ✓ Simplicity in design.
- ✓ Waterproof moulded coil.
- ✓ Lower operating cost.
- ✓ Minimum lubricating requirement.
- ✓ Light in weight.
- ✓ Higher voltage at starting speeds.
- ✓ Constant spark over entire speed range.
- ✓ Compact and sturdy construction.





There is no need for inflation in small engine operating and maintenance costs if you specify Bendix magnetos. The fact is, a new high in dependable performance can be obtained at no extra cost. The basic design of these rugged lightweights enables Bendix to meet the operating problems of *every type* of small engine, as well as *every pricing requirement.* If you want to hold down operating costs for the small engines you employ, be sure to insist on Bendix—the most trusted name in magnetos. Write us for full details.

Bendix

SCINTILLA MAGNETO DIVISION of
SIDNEY, NEW YORK

Bendix AVIATION CORPORATION

Export Sales: Bendix International Division, 72 Fifth Avenue, New York 11, N. Y.

FACTORY BRANCH OFFICES:

117 E. Providencia Avenue, Burbank, California • 582 Market Street, San Francisco 4, California • Stephenson Building, 6560 Cass Avenue, Detroit 2, Michigan • Brouwer Building, 176 W. Wisconsin Avenue, Milwaukee, Wisconsin

ACCO products

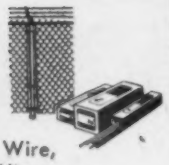
R-P&C VALVES
Bronze, Electric Iron & Cast Steel Valves and Steel Fittings
R-P & C VALVE DIVISION



TRU-LAY Preformed WIRE ROPE
ACCO Registered Wire Rope Slings, Crescent Non-Preformed Wire Rope
AMERICAN CABLE DIVISION



PAGE CHAIN LINK FENCE
Welding Wire, Shaped Wire, Manufacturers' Wire
PAGE STEEL & WIRE DIVISION





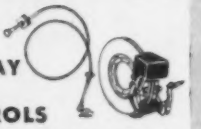
AMERICAN CHAIN
Weed Tire Chains, Welded and Weldless Chain, ACCO Registered Sling Chains
AMERICAN CHAIN DIVISION

ACCO



TRADE MARK

TRU-LAY CABLE CONTROLS
Aircraft Cable, Push-Pull Controls, Tru-Stop Brakes for Trucks and Buses
AUTOMOTIVE AND AIRCRAFT DIVISION



LAY-SET Preformed WIRE ROPE
Nonparell Non-Preformed Wire Rope
HAZARD WIRE ROPE DIVISION





HELICOID PRESSURE GAGES
HELICOID GAGE DIVISION

MANLEY AUTOMOTIVE EQUIPMENT
Presses, Jacks, Wrecking Cranes, etc.
MANLEY DIVISION



...a Name to Remember

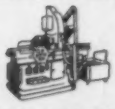
• These are products of **ACCO,** the symbol and trade mark of **American Chain & Cable,** whose policy is to make each one of a wide variety of products "intentionally better." Specify **ACCO** products.

FORD HOISTS
Hand and Electric Hoists
FORD CHAIN BLOCK DIVISION





PENNSYLVANIA LAWN MOWERS
Power and Hand Mowers
PENNSYLVANIA LAWN MOWER DIVISION



CAMPBELL MACHINES
Wet Abrasive Cutting Machines, Nibbling Machines
CAMPBELL MACHINE DIVISION

"ROCKWELL" and TUKON HARDNESS TESTERS
WILSON MECHANICAL INSTRUMENT DIVISION



WRIGHT HOISTS and CRANES
Wright Hand Hoists, Speedway Electric Hoists, Cranes
WRIGHT HOIST DIVISION





CASTINGS
Reading Electric Steel ACCO Malleable
ACCO CASTING DIVISION



MARYLAND BOLTS and NUTS
THE MARYLAND BOLT and NUT COMPANY



OWEN SPRINGS
Springs and Units for Mattresses and Furniture
OWEN SILENT SPRING DIVISION

ACCO



American Chain & Cable

BRIDGEPORT 2, CONNECTICUT

Serving Industry Transportation Agriculture and the Home

A Growing Responsibility

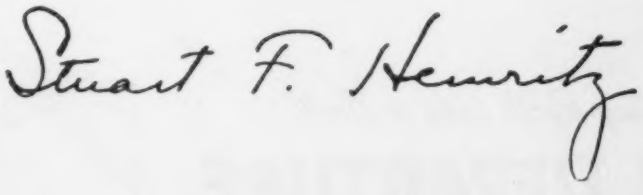
Cost of purchased materials is one of the basic, inescapable factors of product cost. For generations in the history of manufacturing industry, this cost has been taken for granted. Management has been so preoccupied with problems of production efficiency, costs of labor and distribution, and mounting tax burdens, that it has come as a relatively recent discovery in management analysis, to find that purchases generally represent a larger proportion of expense than all other factors put together.

The discovery has not ended with this point. Comparative studies show that the proportionate share of the sales dollar expended for materials, parts, supplies and equipment is steadily rising. Ten years ago in the automotive industry, for example. purchases amounted to slightly more than 51% of the sales dollar, on the average; today that figure is well over 60%.

The rise in raw material costs is only a minor factor in this development, for increases in wage rates and taxes have been much greater. The significant change has been in the policy of extending the procurement of fabricated parts and components from specialized suppliers of such items for assembly in the end product. Purchasing, rather than diversified manufacturing, has been found to be the more economical course. In this process, suppliers' costs of labor and taxes become a part of the purchase cost for the prime manufacturer, and the responsibility for product costs is more and more concentrated in the purchasing function.

The third phase in this changing concept of production management is the realization that a company's competitive position and profit potential are increasingly dependent on the efficiency and initiative of its purchasing operations. Purchasing is no longer the defensive platoon of industry, seeking only to curtail costs by saving. It is a dynamic function that can and must make a positive contribution to company profits in any successful enterprise.

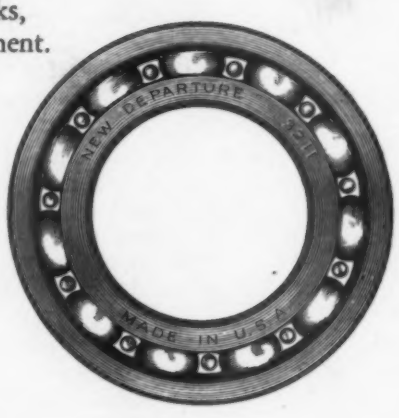
This fourth annual "Purchase for Profit" issue is dedicated to the awakening of management and purchasing executives to the tremendous opportunities and growing responsibilities inherent in the purchasing function, far beyond the original concept of a service department, and to show by practical examples how these opportunities may be realized.





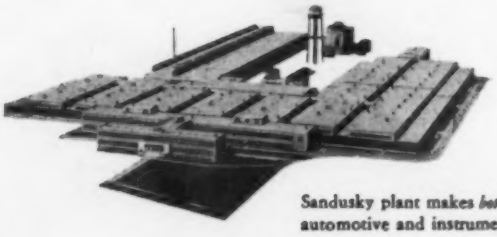
"swords *and* plowshares"

At this very moment, New Departure's three great plants are turning out thousands of ball bearings for both industry *and* the Armed Forces—for trucks *and* tanks, jig borers *and* jets, household appliances *and* electronic equipment.



Because all New Departure ball bearings are of the same materials, receive the same heat treatment, are manufactured by the same precision methods, conversion from one to the other at New Departure is largely a matter of changing the emphasis on types and sizes.

Whatever *your* bearing requirements, feel free to call on New Departure. Its engineers, vast research facilities, and the tremendous capacity of its "guns-and-butter" plants are your assurance of the best possible production schedules.



Sandusky plant makes *both* automotive and instrument bearings.

Nothing Rolls Like a Ball...

NEW DEPARTURE
BALL BEARINGS

145

NEW DEPARTURE • DIVISION OF GENERAL MOTORS CORPORATION • BRISTOL, CONNECTICUT

In This Issue . . . . .

Guided by the requests of scores of readers who have found previous "Purchase for Profit" issues of PURCHASING a practical working tool for more effective buying. this fourth annual issue follows substantially the same outline as was used for those earlier presentations of the "Purchase for Profit" theme.

One major change of editorial policy has been made. Whereas former issues presented in detail the techniques of the larger manufacturing organizations, where "Purchase for Profit" programs have been developed as specialized activities within the purchasing department and have been brought to a highly scientific stage, the emphasis in this issue has been placed on the experience of smaller and medium size companies. We have consistently stressed the fact that the "Purchase for Profit" principle can be applied with equal success and advantage in the purchasing department of moderate size. Here is the evidence.

You will find in this issue the testimony of industrial leaders as to the role of purchasing as an integral part of management.

You will find the evidence of profitable purchasing, taken from the experience of representative companies where cost saving and product improvement have been accepted as a part of the purchasing responsibility and made a part of purchasing policies and activities.

You will find hundreds of actual, authenticated case histories of specific purchases that have contributed to more profitable company operation, arranged under nine major classifications for quick reference. Many of these examples are capable of direct application to your own purchasing, with comparable dollars-and-cents benefits. Additional information on any item reported in this section is available on request.

You will find in the advertising pages of this issue hundreds of additional "Purchase for Profit" suggestions on a wide variety of industrial products and services. We commend a careful reading of these advertising messages as the guide to further profit opportunities in your purchasing program.

You will find the issue as a whole of permanent reference value. Months of research have gone into its preparation, and hundreds of information sources have been consulted. The result for you is months of continuing useful service and hundreds of ideas for more profitable purchasing.

STOP! *The Light is Flashing*

America has come to the end of an era. Whether it is the end of freedom or the end of creeping dictatorship is for you to decide.

The time for decision—and for action—is at hand.

Ever since the great depression of the '30s, the government of the United States has been operated on an emergency basis. The depression emergency was a very real one. So was the emergency of World War II. Some of the others have been of a more questionable nature; problems that any nation must expect to meet in the normal course of events have been built up to emergency stature to serve the ends of group pressures and political expediency, and dealt with by the technique of emergency.

The technique of emergency is government by executive order, instead of by the process of legislative action and judicial review, upon which our constitutional system is founded. This hurdle is surmounted by the passage of enabling legislation which grants emergency powers to the executive. This clears the way for prompt and decisive action but renounces the responsibilities of the legislative branch of our government, which is specifically charged with shaping the pattern of our national life and safeguarding the interests of the nation and of the individual citizen.

There has been no lack of warning as to where this course may lead us, substituting the opinion and will of one man for the considered judgment of the representative majority. It is the road to dictatorship.

But it is a part of the American character to disregard the yellow light of warning signals and hope for the best. As a nation, we have been overcomplacent in accepting this continuing policy of government. Only a few days before President Truman's action in ordering seizure of the steel industry, Congress itself extended the President's emergency powers for another 60-day period, though seizure of private industry other than utilities, under any circumstances, was not contemplated in that action.

The President's action in declaring the impending steel strike a national emergency under the meaning and intent of that act, and the subsequent arbitrary seizure of the nation's No. 1 basic industry, have changed the signals abruptly.

We no longer have the yellow light of warning.

The light is flashing red for danger—red for dictatorship—red for the passing of individual rights.

The time has come to call a halt to this course.

We are not passing judgment on the relative merits of the contentions of either side in a labor-management wage controversy in the steel industry. That dispute was being argued out at the conference table between the parties at issue, and the law of the land—which has not been invoked—provides an orderly method for resolving the issue if and when the parties fail to reach an agreement.

Nor do we take issue with the view that uninterrupted steel production is vital in the national issue, with or without an emergency.

But the issue is bigger than the steel industry. The price at which this continuing production has been bought, by executive order, is not measured in dollars and cents or in tons of steel. That price is a complete scuttling of our cherished principles of democracy in government and the rights of private enterprise and private property under the law.

Red for Dictatorship

That is something which directly and deeply concerns every individual citizen — his rights, his opportunity, his future, and the future of his children.

The President's order not only by-passes the legislative branch; it is in complete disregard of the stated law and the limitations of his delegated authority.

It substitutes the will of one man for government by majority opinion. The fact that this will may be swayed by confidential personal advisers increases the danger rather than alleviating it.

It substitutes executive order and coercion for the process of collective bargaining.

It usurps for government the determination of management policies and decisions, affecting the recognition of contractual obligations and the stewardship of private investments, and shaping the industrial structure without regard for profitable operation and sound growth.

On the surface, the steel order merely assures continuation of steel production in the national interest.

Actually, it places in the hands of government the power to set wage scales and conditions of employment, including the union shop. It assumes the power to control prices without regard to costs of production. It permits the suspension of dividends and of payments on the companies' bonded obligations. It makes all expenditures for corporate or business purposes subject to government approval. It gives the government complete authority over the earnings of private enterprise and what shall be done with them.

If this high-handed interpretation of the inherent powers of the President is sustained, we are indeed in an emergency—not an emergency of steel supply, but an emergency of freedom and representative government. Even if the steel dispute is settled by this coercion and the industry returned to its rightful owners, the dangerous precedent must be definitely repudiated. Such action must not be permitted now, or ever again.

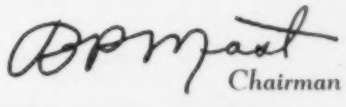
The emergency which is cited in this instance is the conflict between free nations and autocratic domination. Our armed forces are fighting to preserve the rights and dignity of the individual within the community of the nation, and to defend against the threat of government by man instead of by law. We have gone to war three times within a generation in support of this principle.

The means which the President has elected to use in meeting this emergency is the adoption of the very same principles against which we are fighting.

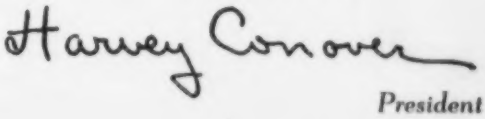
This is not a victory. It is a complete capitulation which will make victory in the field a hollow mockery.

If we believe in the cause for which we are fighting, and if we do not wish to live permanently under a new regime of government by executive order, the time to repudiate that action with every force at our command is NOW.

Conover-Mast Publications, Inc.



Chairman



President

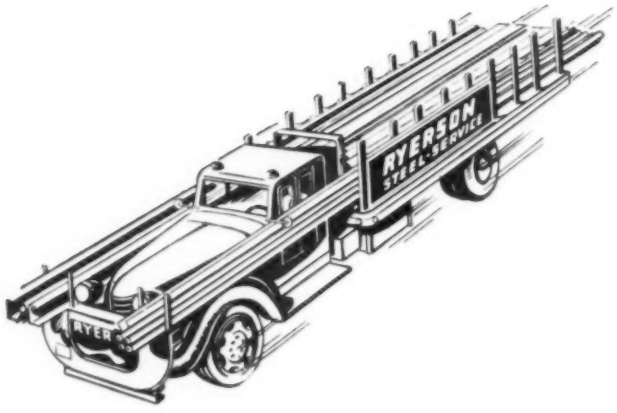


RYERSON

Ryerson Steel Service awaits your call at fifteen great plants, strategically located for quick delivery anywhere.

STEEL

Carbon, alloy, stainless—every kind of steel is on hand. Though some sizes are still occasionally out of stock, most requirements are usually available.





SERVICE

Ryerson representatives are ready to assist you on any problem involving the purchase, fabrication or application of steel. Just call your nearest Ryerson plant.

PRINCIPAL PRODUCTS

CARBON STEEL BARS—Hot rolled and cold finished

STRUCTURALS—Channels, angles, beams, etc.

PLATES—Many types including Inland 4-Way Safety Plate

SHEETS—Hot and cold rolled, many types and coatings

TUBING—Seamless and welded, mechanical and boiler tubes

ALLOYS—Hot rolled, cold finished, heat treated. Also tool steel

STAINLESS—Allegheny bars, plates, sheets, tubes, etc.

BABBITT—Five types, also Ryertex plastic bearings

MACHINERY & TOOLS—For metal fabrication

RYERSON CERTIFIED STEELS

JOSEPH T. RYERSON & SON, INC. PLANTS AT: NEW YORK • BOSTON • PHILADELPHIA • CINCINNATI • CLEVELAND • DETROIT
PITTSBURGH • BUFFALO • CHICAGO • MILWAUKEE • ST. LOUIS • LOS ANGELES • SAN FRANCISCO • SPOKANE • SEATTLE

We Can't Afford Untrained Buyers

By C. F. Ogden, Purchasing Agent, The Detroit Edison Company, President, National Association of Purchasing Agents



C. F. Ogden

THE automotive experts tell us that the modern automobile, resplendent with flashy colors and bright chrome, is really a very inefficient piece of mechanism. For all its streamlining and high compression it does a rather bad job of utilizing the energy that is in a gallon of gasoline. The lubrication manufacturers say that one of the biggest problems of engine design is overcoming friction in the moving parts, so they are ceaselessly attempting to minimize this friction. The fact that today's automobiles are more efficient than those of years past attests to the wisdom of their vigil.

People are a lot like automobiles in this respect. Often we don't like to admit it, but we usually have inefficiencies too. There is a lot of natural friction in each of us. We sometimes find it hard to get started, difficult to keep going and much too easy to coast to a stop if the going gets rough. An examination of this "friction" in people brings to light some interesting facts.

a. People do best those things which they like to do.
b. People who are interested learn more quickly.
c. People who are proficient in their skills are the most productive.
d. People who know their jobs and do them well experience the satisfaction of accomplishment.
e. People who experience accomplishment are the happiest.

Now! What kind of "oil" can we use that will help overcome the friction in people? From the above analysis it appears that people are the happiest and the most productive when they are doing something that they know how to do. We can do one of two things to reach this goal:

a. Shift all the people in industry around until everyone is in a job he knows how to do. (This may leave some essential jobs unfilled.)

or,

b. Train workers in their present jobs so that they will know how to do them and become proficient at them.

Certainly there is little question as to which is the better course of action. *Could it be that the best lubricant yet developed to overcome human friction is training?*

In the case of those of us who work in the purchasing profession, the problem boils down to whether we can afford untrained or partially trained buyers in our Purchasing Departments. How many additional sales dollars would it take in your business to cover the loss of one expense dollar unwisely spent by the Purchasing Department? Experience shows us that the investment in a sound training program for buyers pays for itself in the long run. But, these are idle words unless we can prove that savings result. The real question is, "Does Training Pay?" I believe it does.

Starts When Buyer is Hired

A good training program is not a one-shot process. It starts when the buyer is hired and continues throughout his purchasing career. For this reason, the foundation built up the first days and weeks on the job are very important. Some call this the induction or orientation phase of training. At this phase the buyer learns about the company, its personnel and organization, the Purchasing Department, its policies and procedures and the other personal information which affects him daily on his job.

In a recent survey of buyers in one company, the Purchasing Agent was startled to find that some of his experienced buyers, (five years and more with the company) did not know important facts about the company that the Purchasing Agent felt they should have been familiar with in the first six months of their employment. Others, the survey result showed, felt that their knowledge of much of the information they ought to have, was altogether too sketchy, and they expressed a desire to know more about it. From this survey was developed a list of items that each supervisor now discusses with each new buyer during his first weeks on the job. This information is given to the new buyer according to his need for it and at a rate at which he can absorb it. By the end of six months, all of the items listed have been discussed plus many others which were prompted as a result of these informal discussions between supervisor and employee.

Does this part of the training

program save money or reduce costs? I am sure it does when you consider that now the new buyer is well informed, more sure of himself, and better able to accept new responsibility. He has matured out of the "fumbling stage" much sooner than if he was left on his own to dig out this necessary information.

During the six months of the induction phase, the buyer must also be doing useful, productive work. So, concurrent with his induction training, he begins to learn the simpler tasks involved in purchasing. Again, he must grow with the job. The things he will use most frequently, routines, procedures, forms, etc., come first. The most important part of the buyer's training at this time is that he learn those things which he needs to know and can immediately put to use. In the Purchasing Department, time is always money, and there is no point in taking the time to teach a newer buyer the more complex aspects of a buying job when he isn't expected to use them for some months. He won't remember them and the training will have to be repeated.

Aside from the obvious economy of more rapidly equipping a buyer with the knowledge and skills he will need on the job, what are some of the other aspects of a buyer's job where an improvement in skill through training could save time and reduce costs?

The Interview

The average buyer spends a considerable amount of his time talking to salesmen. Well schooled in the art of selling his product, the average salesman knows that contact with the buyer is important. Particularly where a technical product is involved, the buyer welcomes these discussions and explanations to get a complete picture of the salesman's product. But, the buyer is in the key position to control the time element and must, therefore, consider himself accountable for the elimination of wasted time. What are some of the interview factors which should get attention in a training program:

a. How to question to get specific information.

b. How to courteously conclude an interview.

c. How to discourage back-door selling.

d. When to refer salesmen to other departments.

e. How to tell a salesman "No".

f. How to discourage routine calls.

The techniques for handling these and other problems are varied, but each successful buyer, over a period of years, has developed his own. Why not give the newer buyer the benefit of this experience? It may save the company a lot of money—it can certainly save the buyer a lot of time.

Tax Matters

The whole problem of taxes on purchases is a very complex one, and yet, the possibilities for direct money losses through payment of certain sales and use taxes where not applicable is sizeable. I know of one instance where the overpayment of a 3% sales tax on certain items amounted to $75,000.00 in a year. The money was recovered when an audit showed that it should not have been paid, but it was embarrassing to the Purchasing Department since the responsibility for determining tax status normally rests with the buyer. Where legal advice on tax matters is available within a company, the amount of training may be as simple as showing the buyer how to use this service. Where it isn't available, more extensive training will be needed. In either event, the more the buyer can learn about tax applications, the fewer the chances for misapplication and the better the opportunity for reducing unnecessary costs.

"A good training program takes time and costs money, to be sure, but the effort spent on this activity can reap huge rewards in the cost reductions which it can effect.

"Certainly, an informed, skilled buyer is an asset to the Purchasing Department and to his company. To settle for anything less is to compromise efficient operations and to burden the department and the company with unnecessary costs and waste".

Should Be Standards-Conscious

In some companies, the responsibility for determining standards is in the Engineering Departments. In others, the departments who use the materials set the standards. In a lucky few, the establishment of standards is a team job composed of engineering, using department, and purchasing representatives. In the latter case, the buyer, through his knowledge of markets and products is in a strong position to influence the adoption or acceptance of standard items in place of the more costly non-standard, special items.

Through the efforts of many allied national groups such as the American Standards Association, great forward strides have been made in establishing national specifications and standards for industry. The advantages of mass production of accepted uniform products and components are obvious. The buyer who continues to place orders for non-standard items because of ignorance of the existence or availability of acceptable standard items is wasting his company's money. This applies whether he has a shared direct responsibility for the establishment of standards or no direct responsibility. A complete training program must include all information necessary to fit the buyer into his proper role in the standards program of the company and to make him "standards conscious" about everything he buys.

Buying Quality

The buyer who has not been trained to recognize and appreciate the true measures of quality may be spending his company's money based on decisions resulting from emotion, salesmanship on the part of the vendor, advertising claims or some other equally immature obliquity of judgment. The process of analyzing a product or material for its value is simply one of determining its suitability and its adequacy.

Quality is a measurable factor. Training in the application of this measurable factor to a given product is an accomplishable process. To deny buyers this training encourages the use of more readily available false expedients and the inevitable resulting higher costs. An important part of the measure of value in a product is the simple one of testing, either by physical test or by performance. The training involved may be simply the recognition of when to test and the recommendation for a test to those responsible for testing.

Price does not enter into a determination of quality. Contrary to popular belief, the half truth, "you get what you pay for" is a dangerous, though too often accepted pit-

fall. The superior properties that add to the cost of one product over another may be totally unnecessary for the purpose intended. Only after a determination of the quality necessary does the buyer talk price. All of these things have been learned by the older buyers through many years of experience. They can be taught to newer buyers. The sooner learned, the more intelligent and prudent are his purchases.

Buying Quantity

Idle equipment and excessive stock piles are as costly to operation as inadequate equipment and lay-offs due to unavailability of materials. Buying materials and equipment in the right amounts at the right time is one of the major problems of Purchasing Departments. Government controls, rising markets, unsettled world conditions and material shortages further complicate the problem. There are certain limitations put on the area of freedom of quantity purchasing for the individual buyer.

In general, the needs as expressed by the individual purchase requisitions restrict the buyer. No such restrictions exist, however, on the recommendations the buyer can make to the requisitioner based on his knowledge and analysis of markets and business conditions. The buyer must be trained to recognize and evaluate:

1. the company's needs
2. the market situation
3. the future

Along with this information, the buyer must also understand packaging, economical shipping quantities, rate of use, obsolescence, and many other factors which will affect the decision of the proper quantities to buy. Each of these, if ignored, adds cost to the operation of the business and reflects unfavorably on the Purchasing Department. This information must, through the process of training, be passed on to those who need such knowledge.

Buying Price

Although no honest Purchasing Agent will admit that he isn't vitally interested in the prices paid for materials, he will just as strongly defend the position that prices alone are not the whole story. We have become such a dollar-conscious nation that we invariably describe great undertakings as well as small things in terms of dollars and cents. There was a time when you went to the five and ten cent store if that was all you had to spend. As long as the article cost only ten cents, you were happy. Purchasing for industry puts no such reliance on the price tag, or shouldn't at least. And yet, price is the crutch that many buyers lean on.

A policy of buying based on price alone is as unbalanced as one based on any other single factor. The important thing to be learned by buyers is "What makes a price?". Buyers can and must be trained to analyze a price based on these fundamental precepts:

1. The price of a product should have some relation to the cost of producing it.
2. The price of a product is affected by economic conditions beyond the control of buyer and seller.
3. The price of a product is determined by competition.

"A policy of buying based on price alone is as unbalanced as one based on any other single factor.

"The important thing to be learned by buyers is—What Makes Price?

"Intelligent use of cost analysis processes for determining prices is a money-saving mechanism for any purchasing department.

"Buyers should be trained in its use if the practice of 'price-buying' is to be replaced by the sounder practice of buying the 'right price'."

Intelligent use of cost analysis processes for determining prices is a money saving mechanism for any purchasing department. Buyers should be trained in its use if the practice of "price buying" is to be replaced by the sounder practice of buying the "right price".

Buying Value

All of the areas for potential savings in profitable buying can be grouped together under the heading of *Buying Value*. In addition to the right quantity, right quality, right price, and those things already mentioned, the term *value* includes many other areas which space does not permit elaborating on at this time. A lot of work is being done by committees of the N.A.P.A. to present a training program that will help purchasing people review their purchasing functions with a "value conscious" approach. Buying under our present world and national economic structure is making it increasingly important to recognize and buy value. I hope that when this training program in buying value is available it will find ready acceptance by purchasing people and will fill a need for this kind of information.

There are, however, two more Purchasing Department functions that I would like to mention where training is important in reducing costs. The first of these is the use of forms.

Use of Forms

In the average Purchasing Department, there is a minimum of from 12 to 15 standard forms used many times daily. It seems fundamental to mention that these forms must be filled out correctly, in the proper number, properly authenticated and distributed to the people who should get them. So much of the activity of the Purchasing Department depends on this essential paper work that instruction in the correct procedures should be an important part of any training program.

It seems to be very difficult to arouse the necessary interest in paper work with professional people, and, as a result the training given in its proper use is often totally inadequate. The problem becomes more serious when other departments such as Accounting, Auditing, Production, and Sales, rely on copies of Purchasing Department forms for certain information which may have been omitted or incorrectly entered.

Keeping Others Informed

The last thing I want to mention, though by all means not the last thing that could be considered, is the Purchasing Department's responsibility for keeping other departments of the company informed. The Purchasing Department is a service organization. The cooperation obtained from the other departments using this service is essential to smooth, efficient operation.

To go back to the previously mentioned area for a moment, *forms*, it is easy to see how essential to the

(*Please turn to page* 500)

Cost Reductions are Important Yardstick of Purchasing Department Efficiency

By C. Warner McVicar, Assistant Vice President, Purchasing, Rockwell Manufacturing Company, Pittsburgh, Pa.



C. Warner McVicar

PROGRESSIVE management is keenly aware of the potentialities for adding to company profit and conserving its competitive position, inherent in modern industrial procurement. But it is looking beyond such matters as market analysis, negotiation, supplier selection, and other phases of efficient procurement. Purchasing is now expected to augment these savings or "profits through purchasing" by a comparatively new concept of buying that we have become acquainted with as "purchase analysis", "purchasing engineering", "value analysis", or "cost reduction".

Thus is being opened to the profession of purchasing, an entirely new field of activity. This new type of buying can only be accomplished by recognition of the fact that the true measure of purchasing performance lies in ultimate production cost. It entails a basic knowledge of materials, the adaptations and comparative values of the varied methods of production and the ability to analyze the production equipment and facilities of suppliers to determine whether they are qualified to bid competitively and yet earn a profit. In like vein it requires that the purchasing men be intimately familiar with their own plant facilities, and the end use of the products made.

It is now recognized that if the purchasing agent is not familiar with materials and methods, he can literally "throw profits out the window." It is not enough to buy. Any purchasing department that complacently places repeat orders with suppliers without trying to reduce costs, is ignoring a dominant management requirement.

Material costs which dominate all other individual costs, determine in large measure the competitive position of our companies. During the past few years top management at the Rockwell Manufacturing Company has given this broad subject searching analysis. Our company is composed of 17 divisions and subsidiaries, each of which is an independent operating unit. These plants make a diversified line of products which includes various kinds of meters, valves, wood and metal machine tools, hand saws, circular saws, taxi meters, parking meters, and cash registers.

We feel that the pattern of our industrial teams combines the best features of decentralized plant operations with the strength and stability that are usually inherent only in unitized large scale manufacture. Through pooled resources, plant integration and by cooperative economies, the various plants respectively are strengthening their position in industry and building better values in their products.

Each plant has its own purchasing department which is directly responsible to the plant manager. On the other hand, overall purchasing policies, procedures, and inventory policies are under the direct supervision of Wm. H. Newbaker, Vice President—Purchasing and Traffic, who has offices in the general headquarters of the Rockwell Manufacturing Company at Pittsburgh. The basic function of the General Purchasing Department is to establish policies and to administer policies for the negotiation and acquisition or sale of materials and equipment, negotiate overall and term contracts, and to study and pass on divisional purchasing department performance.

About a year and a half ago the General Purchasing Department issued a rather comprehensive Purchasing Department Manual, defining Purchasing Department policies, for the guidance of the purchasing deparments and plant managers insofar as the function of procurement is concerned.

New Esprit De Corps

One of the major values of this manual lies in the fact that all of our plant purchasing men are now taking a more constructive attitude toward securing the cooperation of department heads and others in their respective plants who are responsible for engineering, production and maintenance. It has created a new esprit de corps among our purchasing men so that we think alike on purchasing problems, and has been of special value when a



Wm. H. Newbaker,
Vice President—Purchasing and Traffic

new factory or a new Purchasing Agent has been added to the Rockwell family, for it has been of major benefit in establishing Rockwell purchasing policies in the new plant and with new personnel.

We have laid much emphasis upon the importance of cost reductions in purchasing, in this manual, setting forth company approved policies that will aid the purchasing department to effect cost reductions by modern purchasing methods.

The manual emphasizes that the buyer must have an understanding of the requirements of the several users of materials and services. We know that it takes time to acquire this knowledge, but feel that it is time well spent. We feel that by observation, understanding contacts with our own plant men and with salesmen, and by keeping abreast of new technological developments, the buyer gains practical knowledge that enables him to effectively work with others. And we have emphasized that it is essential that the buyer have an intimate knowledge of the uses made in the plant of the material that he buys, the methods and equipment involved, an understanding of the variations in materials, and the end uses of the products that the plant may make.

We stress that it is his responsibility to carefully watch the news of new developments in new equipment or materials, systematically selecting and giving particular attention to those things that may concern his own operations.

The policies set forth in the manual give our purchasing men full authority to question the quality, quantity and kind of material asked for in a requisition, that the best interests of the company may be served. Accordingly, it is their responsibility to question any requisition that does not look right in the way of quantity, size, kind, or delivery.

Further looking to cost reductions are what we term Projects. This is strictly a purchasing department activity. Each purchasing agent, buyer, and assistant buyer is expected to at all times be giving consideration to a project. A project involves the selection of an individual item or class of materials as the object of eventual reduced prices. This may involve locating more efficient and more economical suppliers; it may involve changing the specifications, or the adopting of commercial standards, or even quantity buying—inventory, money and other factors considered, all looking to ways to reduce costs to the lowest possible level. We feel that by concentrating efforts on a few items at a time, a thorough job can be done which will reflect a more "profitable" purchasing job over a given period of time.

Not overlooking that one of management's most vulnerable spots is its pocketbook, and the fact that management is definitely interested in men who are able to contribute to company profit, the manual, as stated, stresses the importance of Cost Reductions by Purchasing, and instructs our purchasing agents to furnish us individual reports on each purchasing activity they have completed which has resulted in a saving.

Our purchasing agents are sending in their cost-saving reports regularly, and in considerable volume. The reports are indeed enlightening, for they reveal that Purchasing is in strategic position to make substantial savings in the procurement of material, parts and equipment.

Constructive suggestions made by purchasing are given due and honest consideration by departments requisitioning materials. Naturally these activities have the approval of our plant managers for they, too, recognize the importance of making savings that are reflected in their plant costs.

Bases of Savings

Our manual, directing attention to the fact that a good purchasing job often results in a saving of money, reduction of inventory, change of source, use of standard or substitute material, or improvement in quality, summarizes the potential bases of savings as follows:

(1) Lower prices obtained by developing new sources of supply.

(2) Price reductions made by regular sources of supply other than normal fluctuations.

(3) Price reductions resulting from the development of non-restrictive specifications, resulting in wider competition.

(4) Savings resulting from the use of standard items and sizes as compared with special purchases previously made. These would include the elimination of price extras, and inventory items when fewer items are stocked and purchases are effected on the basis of standard shipping quantities rather than manufacturing quantities.

(5) Savings resulting from the utilization of new or substitute materials as compared with previous standard practices.

(6) Savings from negotiating better trade discount, cash discount, and quantity discount classifications and terms.

(7) Savings made through the utilization or salvage of surplus and obsolete supplies and equipment, as compared with the cost of new purchases for comparable requirements.

(8) Savings made by the purchase of fabricated or semi-finished components as compared with the cost of the same parts manufactured in the company's own plant.

(9) Savings made through better purchasing procedures and lower costs of departmental operations.

In addition to the savings earned on an individual purchase, the men are instructed to estimate what the annual cost-savings on each item would be. It will be noted that the lower section of the "Cost Savings Report" reproduced on page 98, provides for showing this information.

Also, for the guidance of our purchasing men, we have included in our manual, a special page indicating the various steps to be taken in studying requisitions, with a view to finding ways of cutting costs: Under the general heading "Tests For Value—Our Challenge—Our Obligation", we state that "Every material, every part, every operation must pass these tests:

"(1) Does its use contribute to value?

"(2) Is its cost proportionate to its usefulness?

"(3) Does it need all of its features?

"(4) Is there anything better for the intended use?

"(5) Can a usable part be made by a lower cost method?

"(6) Can a standard product be found which will be usable?

"(7) Is it made on proper tooling—considering quantities used?

"(8) Do material, reasonable la-

EXAMPLES OF COST SAVINGS MADE BY DIVISION PURCHASING AGENTS

of Rockwell Manufacturing Company

Saving 46% per unit

Steel glass-spacer part had been previously formed and plated at Pittsburgh, after purchase of material. Cost was .13012 each. New plastic spacer ring (no die cost involved) was recommended, at cost of .7¢ each; saving .06012 per ring; saving 46% per unit.

Savings per unit $10.63 each

Price of strainer body was reduced from $46.33 each to $35.70 each, or $10.63 per unit. Saving effected by changing from loose pattern to plate-mounted pattern adapted for production runs. Estimated annual saving $2126.00.

Save 50c each on Tangent Gear

Former price of cast brass tangent gear was 72¢ each. Part had formerly been purchased as plaster mold gear blank, teeth had been cast and shop was machining all finished parts. Pattern was made for producing sand castings. Though cost of machining remained the same the price was reduced to 22¢ each, a saving of 50¢ per unit. Estimated annual savings $2,000.

Savings $14.54 per unit

Pattern equipment for meter body was used for both cast iron and steel castings. Due to increased production, new pattern was made to be used for cast iron castings only. Original pattern is being used for steel castings only. Cost of shipping patterns from one foundry to another was eliminated. Estimated annual savings placed at $872.40.

Save 64% Per M on Cap Screws

5/16-18 x ⅝ hex head heat treated cap screws were being used on certain assembly. Purchasing Agent felt that use of alloy steel screws was unnecesary, and engineering department approved substitute. Price formerly paid was $23.90 per M. The cost of the substitute is $8.64 per M, marking a saving of 64%. Annual savings placed at $534.

Carbon Strip Steel Saving

By change in vendor and change in carbon content of carbon strip steel from SAE 1080 to SAE 1075, .047" thick for handsaws, former price of $16.25 per C lbs. was reduced to $11.20 per C lbs., a saving of $5.05 per C. Estimated annual savings placed at $36,360. The SAE 1075 recommended by Purchasing Agent was given thorough test and proved satisfactory for use intended.

Reduction on Iron Castings

Cast iron meter part—cost $1.14. By changing source of supply from critical labor area, new source reduced cost by .266¢ per unit. Based on annual usage, the saving on this casting amounts to $47,952 per year.

Quantity Buying of Hand Soap

Saving of 1½¢ per pound was made on hand soap. Former price was 17¢, but by increasing order to ten barrels (300# each) price was reduced to 15½¢, making a saving of 1½¢ per pound. Saving on initial order was $45.00.

Permanent Mold Reduces Machining

New permanent mold for producing special part, makes possible machining cost saving of .1166 each. Estimated annual usage of part calls for 10,129 pieces, making a machining saving of $1,181.04, less mold cost of $760, or net saving of $421.04.

$4.78 Saving on Valve Plug

Price formerly paid for special valve plug was $16.73. By changing to vendor better equipped to produce the plug, the price was reduced to $11.95 each, making a saving of $4.78 per unit. Saving on first order was $1,434. Estimated annual savings are placed at $9,560., less $1,400. non-recurring die charge.

Cost Per Unit Cut 98c

Because of increase in orders for cover forging, Purchasing Agent felt increased volume warranted cost of $502. for sinking die. The price of the units was reduced from $3.50 each to $2.52 each, a saving of 98¢ per unit. Saving on initial order was $392. Annual savings are placed at $1764. minus cost of die, making net saving of $1,262.

Additional Pattern Saves 75c per Unit

Float casting was costing $1.50 per unit. Purchasing had additional pattern made at cost of $30. to fill up board for better price per casting. Price cut in half, reduced to 75¢.

Powder Metal Part Cuts Cost

Small flag collar for meter was formerly produced as brass stamping at cost of .02222. Purchasing agent suggested substitution of powdered metal part. In addition to saving brass, this made for improved design, and the unit cost was cut to .01089—a saving of .01133 per unit. Estimated annual savings are placed at $3,896.

Save $.72 Per Cover

Our box cover of cast iron formerly cost $1.83. Purchasing agent suggested change in design for the part, placing pattern with new source of supply, with result that price per unit was reduced to $1.11 each. Estimated annual savings are placed at $6,048.

Envelope Standardization Makes For Big Savings

Office Supplies buyer suggested standardization of #10-24 envelope to conform to other envelope standards, making unit standard for company use. Price of envelopes as formerly designed and printed was $8.42 per M. New price is $3.72 per M, a saving of $4.70 per M. By standardizing the envelope for use by all members of the Rockwell group, savings run into thousands of dollars per year.

Making Instead of Buying

Purchasing agent felt that cost of small door front for cash register unit was too high. Outside source was charging 19¢ per unit. He took the matter up with the shop and cost department and found that shop could make unit for 14¢ each —saving 5¢ per drawer front. Annual saving placed at $120.

Saving on Laminated Plastic Parts

Original supplier was having difficulty getting necessary material, and deliveries were unduly extended. Purchasing agent secured approval of engineering department on samples from another company which, it was learned, could fabricate parts at considerable lower cost by different method. Order with original supplier was cancelled. Saving on first order was $7,000 with tool expenditure of $400.

Save on Crating

Yellow pine was being used for crating. Purchasing agent had shop try out western pine, which proved entirely satisfactory. It is not only lighter in weight, but saving in cost per carload ran between $150. and $200.

Save 16,000 lbs. of Steel

On suggestion of purchasing agent material for bearing closure nut was changed from carbon bar stock to zinc die cast job. This not only saved some 16,000 pounds of steel for other uses, but resulted in reduction in price from .065 per unit to .046 per unit, a saving of .021 each. Annual saving $1050.

Net Saving on Component Parts for Complete Unit

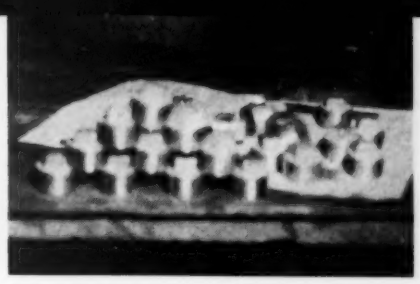
In a study just completed, it was found that one of our products contained nine component parts on which price increases had been granted since 1948 totaling .6726¢ per unit. However, this same unit contained thirteen component parts on which price reductions had been secured since 1948 which totalled $1.5649 per unit. On these 22 component parts on which price changes have occurred since 1948, the net reduction in the material cost for each unit amounted to .8923¢.



Saving by Substitution; Cap screws, price reduced 64% per M. Also see examples of cost savings on page 96.)



Saving by improving pattern equipment. Strainer body. Price reduced by changing from loose pattern to mounted pattern.



Saving by Change of Source. Square head brass pipe plugs. Change of source reduced price from 16.73 to 11.95 per hundred.

bor, overhead and profit total its cost?

"(9) Will another dependable supplier provide it for less?

"(10) Is anyone buying it for less?"

Superficially this program would seem to impose onerous obligations on our purchasing men. Since its inauguration and the issuance of the management approved manual, the men have accepted the challenge wholeheartedly. Our plant managers and their respective department heads are most cooperative. In their purchasing work our men also think of production, and of sales, they realize that competition is not dead—that procurement is the first step in sales.

Purchasing Men Get Results

Our men are literally digging into this gold mine. They are making savings on many products ranging from cartons to coal, metals, lumber, castings, and forgings. Their approach is practical, as evidenced by the following recital of activities of one of our men—a purchasing agent who was practically reared in a machine shop and metal working plant.

He is intimately acquainted with lathes, automatics, milling machines, drills and other plant equipment. He is familiar with the various methods of metal working and metal forming —milling, drilling, screw machine production, stamping, molding, casting and other methods. He makes plant visits continually—he knows what suppliers are prepared to make and what they cannot make.

Say he gets a requisition for a thousand castings of a certain kind. He looks at the job from the standpoint of machining these castings in our own plant. In many instances he has made design change suggestions that have cut machining to a minimum. He will tell you that a plan or specification may indicate 3/16" tolerance, that this calls for unnecessary machine time, and that by reducing the tolerance to 1/16" two cuts can be saved in bringing the part to size as only one cut will be necessary. The results of his suggestion include saving metal and saving machine time in our plant.

He has found it time and money saving where foundries may be making the same type casting from two different metals, to supply two sets of patterns. Also, he has found it possible to make savings approximating 10% and more on unit costs, by supplying duplicate patterns to foundries to whom he has awarded production runs.

He is also responsible for a repeat saving by giving study to the use requirement of cap screws called for on a recent requisition. Discussing the matter with our engineers he learned that the pressure of 150,000 psi indicated was not necessary because the product itself was not subjected to that strain and subsequent stresses in service. The result was that engineering O.K.'d the use of 5/16" cap screws with 90,000 yield.

In another instance he received a requisition and plan, calling for a compression spring designed with a special machine loop. He questioned the need for the special loop, discussed the matter with the engineering department, with the result that a standard spring hook was O.K.'d for the part. Through this eagle-eye approach to small things, shall we say, he is responsible for effecting an annual saving of $300 on this item, which will continue for years to come.

He has also initiated changes in materials used on certain jobs, with considerable saving of both time and money. Typical is the suggested use of free machining brass instead of phosphor bronze for certain parts, a suggestion duly approved by engineering with savings running up to 15% on some parts.

He has a penchant for acquiring a rather complete picture of a supplier's facilities, production and materials used. He has developed friendly contacts with suppliers who are making production runs of various products in brass, utilizing the same size brass called for by our products. By consolidating our small orders with their production runs—say 1000 pieces which may use 300 pounds of brass, he has been able to secure the price advantage made possible by their quantity buying of brass from the mills.

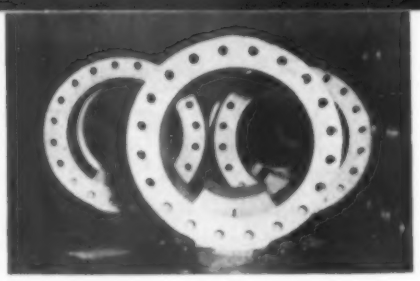
The cooperation of suppliers is one of the invaluable benefits of plant visits, and we encourage our men to become acquainted with our vendor's personnel as well as with their facilities.

New Supply Services

While we fully appreciate the dependable services that have been rendered by our long time suppliers, we urge our purchasing men not to lean too heavily on purchase records and past performance, for the very simple reason that progressive suppliers who have installed new equipment and methods for faster and better production can produce equal or better products at lower prices, and that they are willing to pass on the benefits of their lower cost production is all too evident in quotations our men are receiving from them. A good example of this is a connecting arm that one of our suppliers had been supplying in lots of 500 at 19¢ each, and below that figure the price was 32¢ each. A canvass of new supply sources unearthed a supplier with more modern facilities who was glad to make the arms for 12¢ each.

It of course is understood that no change in specifications is made without the approval of engineering and using departments. Our plant men are giving us wholehearted cooperation for they, too, are anxious to keep their costs down. As will be noted from the partial list of cost savings initiated by some of our men (page 96), it is evident that we are getting results.

As a matter of fact, the Rockwell purchasing manual serves as a typical example of how savings can be effected. It consists of 81 pages of text divided into 21 sections. We estimate that in its preparation we saved $10. a page by having the text typed on electric typewriters, and the pages reproduced in one of our multilith departments. If a page needs revision, it is a simple matter to retype it—a job that is far quick-



Saving by Duplicating Patterns. Cast meter body. Duplicate patterns at iron and steel foundries saved money.

er and far cheaper than commercial typesetting.

There is no question that cost-reduction by purchasing is one of the important yardsticks of purchasing department efficiency. Buyers who have been successful in effecting cost savings, grow more so as time goes on.

We feel that a buyer is competent when his plant associates, vendors and the salesmen who call upon him, respect his judgment. That type of buyer will make good savings, and accordingly advance in purchasing, because he is qualified to sell his ideas to the people with whom he works.

We who have long been associated with Purchasing, know that many purchasing men have to their credit some remarkable cost saving activities. They may have an inner-feeling of a job well done, but we feel in view of the fact that a "penny saved is a penny earned", that management should know of these accomplishments by the purchasing department. I am convinced that the reports of cost reductions or savings by purchasing will go far in enhancing the standing and prestige of purchasing. Among other things they demonstrate that properly manned purchasing departments backed by suitable policies can make outstanding contributions to company profit, and the maintenance of its competitive position.

We have not yet gotten into full swing on this program, but that substantial savings are being made, is reflected in the constantly growing volume of savings reports we are receiving. These reports are of no small interest to our management.

Practical Inventory Control

There is another very important phase of our overall cost-saving program, and that is inventory control. I feel that in addition to purchasing efficiency, keeping the plant running smoothly, and profits through savings by purchasing, that the oft asked question "What's ahead for Purchasing" depends to some extent on what Purchasing can do to effect practical inventory control.

To cost-conscious management,



Text of Purchasing Manual was written on electric typewriter and multilithed in stationery department at saving of $10.00 per page.

the proper handling of inventories is more than a means for economical procurement, quality, standardization and uninterrupted production. Proper handling of inventories is a means for attaining the goal of lower *real* cost of materials at time of use, fewer dollars on the shelf, and less write-off of surplus materials. It is a highly profitable activity in itself.

We should regard inventory as "money" on which the company pays rather than collects interest. It is money always in danger of devaluation. Uncontrolled inventory might well be termed industrial cancer. It is especially dangerous because there are no warning signs. Purchasing is easy. Sagging stockroom shelves are pleasant, not painful to the men in the plant. Most deceptive of all, excessive stock produces a seemingly advantageous competitive position. On the other hand, hand-to-mouth buying is often the basis of delayed production due to material shortages, and costs mount despite the economies of head-spinning turnover which plummets various costs.

Both over-stocked and the understocked plants evidence the need for inventory controls or materials management to insure that proper inventory balances are maintained. Aside from being of major import from the standpoint of company finance and profits, good controls are of prime importance to production, and likewise are a means for effecting purchasing economies. Materials management is a vital responsibility. It is an important entry on our purchasing department cost reduction agenda, for it too is a means for adding to company profit.

ROCKWELL MANUFACTURING COMPANY AND DIVISIONS

PURCHASING MANUAL

September, 1950
Section 19-Page 5

(Use the Internal Correspondence form)

Subject: PURCHASING DEPARTMENT REPORT OF SAVING

_____ Division. Date _____

Purchasing Agent or Buyer

Requisition Number

Description of Material

Reason for Revision (substitute material, standardization, change of vendor, quantity increased, negotiation, purchasing recommendations, quality improvement, or other.)

Former Price

Price this Order

Savings per Unit

Quantity this Order

Savings this Order

• • • • •

Estimated Annual Units Purchased

Estimated Annual Savings This Item

_____
Division Purchasing Agent

Send original to Vice President-Purchasing, Pittsburgh
Retain copy for Division file.

Purchasing Manual indicates kind of information that is to be shown in Reports of Savings by division purchasing agents.

Saving by — Specification Analysis, Product Analysis, Vendor Analysis, Quantity Analysis

By Fred W. Frohn, Purchasing Agent, The Bristol Company, Waterbury, Conn.



Fred W. Frohn

ALL of the members of our purchasing department are deeply conscious of the profit potential that lies in industrial procurement. We have accepted the challenge to do a better job from a price standpoint, by a four-point program that is constantly paving the way for interesting savings.

The success of our efforts is attested by the fact that though prices in general have reflected an upward trend during the past year, the record shows that the dollar total of price decreases is far greater than the total of the increases. And I can modestly say for our purchasing staff that a large number of these decreases have been made possible by our four-point purchase analysis program, the backing of our management, the complete cooperation of our plant men, and the all-important fact that the members of our purchasing staff are production minded. Our four-point program rests on specification analysis, product analysis, quantity analysis and supplier analysis.

We feel that we have a well grounded staff to administer this program. Personally, prior to entering purchasing some eleven years ago, I spent 13 years in the shop. J. H. O'Connor, purchasing methods engineer, who has been with Bristol for the past seven years in production and purchasing, formerly was supervisor of methods and procedures, Ranger division, Fairchild Engine and Airplane Corp., Farmingdale, New York. Gregory Phelan, buyer, is a tool maker and shop methods expert who has had several years' experience in production, and E. J. Griffith, buyer, has been with Bristol for more than ten years, specializing in wire buying.

We are well acquainted with the production facilities and the products of our own company. We work closely with our engineering, production and maintenance men, and give new products of the Bristol Company close study.

Also, we constantly strive to get all the facts about new technological developments that may affect our production and *our buying*—from salesmen, the press and industrial expositions. We have found it of practical value to analyze new developments not only from the standpoint of the Bristol Company, but from the standpoint of their utilization by old and new suppliers.

The Bristol Company is a medium size industrial plant, giving employment to some 1100 people in the manufacture of recording and regulating instruments and accessories. Our stock lists some 15,000 items and the purchasing department is responsible for the annual expenditure of about $4,000,000.

I mention these facts as proof that the purchasing procedure of purchase engineering, product analysis, or value analysis, is by no means restricted to the giants of industry. We are daily proving that these procedures can be easily and profitably employed by any purchasing department manned with a buying staff that can deal on an even plane with production departments, sales engineers, and vendors. The fact that over the years we have been able to make substantial savings and also cooperate with our engineering and production departments in cutting their costs, has added materially to the prestige of the purchasing department.

There are many angles to this broad subject of Purchasing for Profit. I previously stressed the need for qualified personnel—buyers who know why they are buying what they are buying, as well as potential supply sources. Now let's consider the purchase record.

Examples of Specification Analysis

(A) Molded hard rubber washer of specific dimensions was among purchased components of a new product. Supplier's quotation $.05. Year's estimated usage $150. Blue prints showed that washer is used under head of mounting screw of another component. Engineering decided molded washer was not necessary. Standard stock fibre washer was approved, the cost being $.001 each, or yearly cost of $3.00 instead of $150.

(B) Bill of material for new product lists special electrical component, price of which was $9.80; annual usage $14,700. Survey of manufacturers revealed similar item which had been adopted as standard by certain company. Collaboration with Engineering in minor redesign problem resulted in adoption of new part, the cost of which is $2.65 each. Annual expenditure $3,975 instead of $14,700.

Examples of Quantity Analysis

(A) Assume your requirements are 15,000 each of 100 sizes and types of standard screws per year. Management's inventory policy is three months' supply. Yearly cost at $10. per M is $15,000. Average value of inventory (½ of 3 months' supply) is $1875. By purchasing at bulk price (15,000 per lot) we have:

1,500,000 screws, average price $5.65 M	$8475.
Average inventory (½ of 12 months' supply)	4237.
Increase in average inventory	2362
Yearly SAVING ($15,000 minus $8475)	6525.
Yield on additional investment—276%	

(B) Another rat-hole where profits disappear is created by policy of buying certain components only upon receipt of customer order, regardless of existing repetition. For example: Item—Steel base and panel. Price in lots of 1-5 is $30. each. Price in lots of 75 is $8. each.

Present policy: 100 units per year at $30. each,	$3000
Stock method, 100 units per year at $8. each	800

The stock method involves an average inventory investment of $300., ½ of 75 units at $8. each, but this is peanuts compared to the $2200 saving which represents an annual yield of 1360%.

Analysis and Classification of Vendors

It is common practice to secure quotations from two or more suppliers. We believe it equally important to classify and analyze vendors. For example, purchases may involve varied sheet metal items such as cases, chassis, boxes, plates, panels, etc. There are hundreds of fabricators of such parts. However, price quotations by a large number of them would vary as much as 500% or more. In other words, only a small number of them are ideally equipped to make certain items. Accordingly, as shown by following quotations from Vendors A, B, C, and D, it is evident that efforts to classify suppliers will pay big dividends:

ITEM	A	B	C	D
Panel, 3/16	$536.	$425.	000	$650.
Chassis, 16 Ga.	3.30	2.20	1.02	1.96
Case	16.	35.	20.	12.50
Plate, 10 Ga.	2.60	1.45	1.84	1.04

As is obvious, (1) Vendor B is choice for heavy panel work, (2) Vendor A is not equipped for small quantity fabrication. (3) Vendor C is best suited for small light-gauge work. (4) Vendor D is ideally set up to fabricate medium heavy items in fair quantity.

Taking Advantage of Price Breakdowns

(A) Purchasing several items of brass rod on a single order results in big savings: For example, 100-300 lbs. is priced at ton price plus 14¢ per lb., an increase of about 40%.

(B) Many wire manufacturers permit grouping of several colors (same gauge) with prices dropping as much as 15%.

(C) Makers of certain electrical components discourage small orders, and products can then be purchased only through jobbers. Price difference is as much as 50%. You can buy 500 pieces direct for less money than 300 pieces through jobbers.

The purchase record should not be regarded as an infallible index to the best sources of supply either from a price or product standpoint, regardless of the history it carries. As stated, we have made a special effort to keep abreast of new developments. These may be machine tools and other plant equipment, or new methods that make for increased and lower cost production. They may be new alloys, new plastics and new applications in both the thermostats and the thermoplastics—for instance, the remarkable industrial applications of nylon and teflon, and the fiber-glass laminates.

The myriad of new materials, equipment and methods play an important role in determining the degree to which we should depend upon purchase records, or court new suppliers, for the extent to which suppliers may have adopted new equipment and methods, and their familiarity with new materials and their uses, determines their value to us. The supplier who uses outmoded, high-production-cost equipment and methods cannot expect to penalize customers because he is not up-to-date.

This reflects the big values of constant plant visits and personal contact with suppliers. They enable the production-wise purchasing agent to gain first hand knowledge as to whether a supplier has the proper equipment for economical production of orders that are ready to be placed.

Incidentally, our works manager is one of those aggressive fellows who has a penchant for learning the "know how" of things. He frequently visits suppliers with members of the purchasing staff. This has been to our mutual benefit for it has given him a first-hand picture of how many of the things we buy are produced, an understanding of the problems that confront suppliers and in turn the purchasing department.

The industrial buyer should never be satisfied until he is sure that he has the right source of supply. In this connection, we should like to put in a good word for the small supplier, especially those new suppliers who may be operating comparatively small shops. It is our feeling that many of them are successful because they have elected to remain small. Often these small suppliers are highly skilled specialists along certain lines who are able to give us dependable service on small orders for special and complicated parts that big companies do not care to handle except at what we consider prohibitive prices.

A typical case centers around rubber covered chart rolls, the prices on which jumped to an unjustified high. In our search for a new supplier, it came to light that the large company with whom we had been dealing was not equipped to produce these rolls at a fair price. The new supplier that we unearthed not only had such equipment, but is able to furnish the rolls according to our specification for $1.85 as

against the old supplier's price of over $4.00.

In view of technological changes constantly taking place, the importance of vendor analysis cannot be over-emphasized. This is evidenced in the procurement of a steel metal part that was costing us $2.45. We were not satisfied with the price. Quotations from several suppliers reflected little difference in price. We continued our search for a new supplier, making contact with a concern specializing in stamping with heavy press equipment. This concern quoted us a price of 78¢. In order to avail ourselves of this figure it was necessary for us to spend $1390 for tooling. However, in view of the fact that this particular unit is a standard part that will be used for many years to come, it was evident that the tooling cost would be amortized in a matter of a few months, and thereafter we would enjoy a saving of over $2,000 a year.

In this case we had twelve quotations, eleven of which were within a few cents of each other. The 78¢ price was made possible by the fact that the company quoting it, had the proper equipment that enabled it to give us the new low price and yet earn a fair profit for itself.

On the other hand, we are glad to help old suppliers develop new production methods that make for lower costs. In one instance where our engineers collaborated with a supplier in developing new tooling for the production of a panel, we were able to get a reduction in price from $42.00 to $26.00.

We also enlist the support of sales engineers and suppliers, in devising means and methods of reducing costs. In this connection, we have just issued a new quotation-request form on which we invite suppliers when submitting bids according to our prints or specifications, to also quote on the nearest standard part they may have, that may meet our needs.

Standardization of components, large and small, opens the way for varied savings, in production, inventory, and purchasing. We are giving this subject close study. We have proved, for instance, that the micro-inch tolerances indicated in specifications or in blueprints are not always necessary. In many instances our standard parts recommendations have met with the approval of our engineers, with resultant savings in purchase-price and on our assembly lines. Of course, the purchasing department does not overlook the fact that standards widen competition, and often make possible delivery service that would not otherwise be possible.

This matter of broadening supplier competition was dramatically emphasized in connection with our purchase of wire. Not only have we been able to radically reduce prices on a certain kind of wire but in so doing we have helped our sales department to regain markets that were going to various competitors who do not have the high overhead we have in our laboratory and technical departments.

On asbestos covered wire, for instance, our buyer has been able to effect remarkable savings. For many years this was a one-supplier source product, but with the development of the national defense program, priorities, allocations, etc., we were experiencing extreme difficulty in getting delivery. By making a thorough vendor analysis, our buyer was rewarded with a drop in price of approximately 50% per thousand feet, and instead of a four to eight months lead time, we were getting delivery within three weeks.

Our experience demonstrates that giving "purchase analysis" attention to small components and materials, as well as to major purchases, pays good dividends. For example, our thread specifications for certain products called for a Class 3 fit, and we were paying $1.40 to $1.50 each for taps. We were buying special ground taps, and there was continual trouble with breakages and thread fit. After an analysis of our difficulties with our engineers and supplier, our specifications were changed to call for a Class 2 fit, with the result that we are now buying commercial ground taps and saving around 60¢ each.

Another comparatively small item on which we have been able to effect permanent savings, is the fabric used on our wet and dry-bulb thermometers. We had been using linen on the tubes, but when the price of linen reached $4.00 and over a yard, we asked our laboratory to test linen-weave rayon. Their tests showed that the linen-weave rayon has better moisture absorption than the linen formerly used and gives better service. Moreover, we are now saving $2.50 a yard on the fabric on these instruments.

We use thousands of small laminated plastics parts. In one case where we felt that the specifications were a handicap to obtaining a better price on washers our study convinced us that the canvas or linen grades specified were unnecessary. At our request our engineers tested paper base washers. These proved entirely adequate and in some instances superior for the use intended than the cloth grades formerly used. By this change we reduced our cost from $25.00 a thousand to $13.00.

We buy a large variety of castings. In large production runs we



Purchasing Methods Engineer J. H. O'Connor and Purchasing Agent Frohn discuss a quotation.



Foreman E. L. Hotchkiss and Purchasing Agent Frohn inspect an interesting job. The rim was formerly purchased as a stamping, but by changing over to a spinning job, it was produced at one-third the former cost.

have been able to save 10% and more per unit by supplying the foundry with multiple patterns so that several pieces can be cast at one time. This also makes for better delivery service.

We also give thorough study to make-or-buy problems, especially where we feel that quotations are out of line. It is our experience that on short runs, suppliers can quote a price we cannot compete with on initial setups. On the other hand, where larger production is concerned, if we have the proper equipment, we have often found it cheaper to have the parts run through our own plant. This also enables us to charge off a part of our plant overhead to such jobs.

In the foregoing and in the special presentation of case-histories on an accompanying page, there are several typical examples of how our Purchasing Department has reduced costs by product analysis, specification analysis and vendor analysis.

The factor of quantity analysis likewise opens the door to excellent cost reductions. Quantity analysis should be considered from the standpoint of changing production methods, and the savings or "earnings" on added investment. It will be found that the savings made possible by buying 200 units instead of 100 units, or 1000 instead of 500, fully justifies the added investment in inventory. An instance involving change in production methods involved an instrument case, which our sales department felt would be in limited demand. As planned, the volume was not big enough to warrant the cost of dies, so we had the case made by sand molding, at a cost of $12.65 each. However, with sales increasing ten-fold, we had the case die-cast, with the approval of engineering and sales, securing a price of $7.50. The cost of necessary tooling was offset in a short time.

Previous to last year, another department had the job of scrap disposal. However, last year in connection with the shortage of brass, the brass companies asked the Purchasing Department if we could send them our brass scrap. We explained to our plant engineer that in order to retain our supplies position, we would have to return brass scrap to our suppliers. Accordingly, the disposal of brass scrap was turned over to us.

The brass companies gave us the maximum OPS ceiling price, which was much in excess of prices formerly received. We then checked the methods of all scrap disposal and found that the prices received were far below the market. Management took an interest in the subject, with the result that all scrap disposal was turned over to the Purchasing Department. We instituted a program of scrap segregation, sought new bidders, and now get top prices for it. Last year we received several thousand dollars more for the scrap than was previously received on a similar tonnage.

We also developed a plan with our suppliers of corrugated cartons that has made for considerable saving in our carton inventory and investment. The diversified nature of our products makes a wide assortment of packing and shipping containers necessary, and it had been the policy to keep our container stocks at a constant maximum to assure that there would be no shipping delays due to container shortage. We were using considerable warehouse space, and had about $15,000 tied up in containers.

By special arrangements with our supplier under which we furnish him each month with a list of our requirements for the next month, we have been able to cut this inventory in half, and at the same time assure our shipping department of an ample supply of containers. This has been accomplished by setting stock maximums-minimums for containers most in use. When stocks reach the minimum, we reorder to the maximum point. Upon receipt of our monthly list, the supplier can group our requirements according to the size of the order and his facilities. This plan has been of benefit to the supplier and to us. We have reduced our inventory, eliminated the issuance of small orders, and have an assured supply of cartons. On the small runs we may not receive the price-wise benefits on long runs, but our program has proved less costly than carrying the heavy inventory.

We recently inaugurated another phase of product analysis, that we believe will pay off. This plan involves the study of various standard products that we stock and buy frequently. It is out of the question in view of the large number of items carried, to make an analysis of all of them. However, we feel that by procuring samples and regularly making special study of a few of the repeat items, that we will find ways to reduce costs. A physical examination of a part reveals entirely different values than are apparent from reading a blue print. Our plan is to study the materials, the design, and end use of the part as well as price, supply sources and methods of production. Another program we have just started involves cost-analysis work with our suppliers, based on their breakdown of costs based on material, labor and overhead. We want our business with our suppliers to be profitable to them. At the same time we feel it would be to our mutual benefit, if advantage is taken of the technical skills of both buyer and seller, looking to cost reductions.

Purchasing ..... Partner in Modern Management

Industrial leaders emphasize importance of Purchasing function in the attainment of management objectives. Statements prepared for the May 1952 issue of PURCHASING Magazine.

EQUAL STATUS WITH OTHER STAFF DEPARTMENT HEADS



Crawford H. Greenewalt
President
E. I. du Pont de Nemours & Company

FOR many years, we in the du Pont Company have recognized procurement as an essential management function. The integration of purchasing with production, sales, research, and the other activities of the company, is essential to a smooth-flowing managerial team. Our centralized Purchasing Department reports to the Executive Committee and its director has equal standing with other staff department heads. It is responsible for procurement of materials for construction and operation of plants; development of sources of new, improved, or alternative materials; and forecasting of market trends. Some idea as to the magnitude of this department's operations may be gained from the fact that our purchases in the year 1951 aggregated nearly $700 million from more than 30,000 suppliers. We expect our buyers to be exceptionally well informed on their materials, fair in their dealings, and to develop and maintain good will and respect of others. This is as important in a buyer as it is in a salesman.

COST REDUCTIONS BY PURCHASING OF GREAT IMPORTANCE



A. W. Peake
President
Standard Oil Company — Indiana

PURCHASING in our company is a major function. This is not merely because of the magnitude of the expenditures, but is also due to the effects of the function on our profits through cost reduction, timely procurement of proper quality goods and services, and good public relations. It is a top-level specialized function requiring a particular type of knowledge and judgment to analyze needs. It also requires an alertness to market conditions and an ability to locate reliable sources, to negotiate ethically and wisely with suppliers, and to build good will.

We expect our Purchasing Department to relieve other departments of nearly all matters concerning procurement, thereby enabling the other departments to devote more complete attention to their primary functions, and through specialization to effect procurement more efficiently than could otherwise be done.

As significant to us as the purchasing function has become, we expect its importance to grow.

VITAL TO SUCCESSFUL OPERATION



AT RCA the art and science of purchasing has achieved a professional and management status that ranks equally with sales, engineering and other top management responsibilities. We are convinced that the prominence we give to the purchasing function is vital to the successful operation of our business. Just how vital is perhaps best indicated by the fact that our procurement people each year spend approximately half of our sales dollar for the raw materials and components required for the products we make and sell.

My own experience in Washington during the last war* served to confirm my belief in the importance of good purchasing management. Today at RCA the direction of our purchasing operations is the direct responsibility of an executive official who is a member of our executive staff.

Our successes in large measure are dependent upon the cooperation we receive from our sources of supply. We think of our suppliers as partners in our business, and consider their facilities an important part of our production lines. Frankly, we are proud of the relationships we have built up with the 5,000 business firms who furnish their products to us. While we are a fairly large company, we lean heavily on many small companies to help us in our work. About 70 per cent of our suppliers are classified as small business organizations, and almost half employ less than 100 men and women. We strive constantly to further strengthen the close ties we have built up with our suppliers, because we believe a friendly and business-like buyer-seller partnership contributes immeasurably to our country's successful way of life.

Frank M. Folsom
President
Radio Corporation of America

*Mr. Folsom was chief of Navy procurement in 1942 and 1943—Editor.

MANAGEMENT LOOKS TO PROCUREMENT MEN FOR PROFIT



ANYONE who entrusts another individual with $10 to make a purchase wants that money spent wisely and well. How much more important for industry, which purchases billions of dollars worth of goods each year, to get value received for each dollar spent.

In the present era of high taxes, high labor costs, material shortages, many governmental restrictions and allocations, industry looks to its procurement men more and more as holding high responsibility for determining whether or not it makes a profit. Wise buying of quality materials often can trim a break-even point.

Yet procurement men must not seek to "squeeze" suppliers. If they do not prosper, industry cannot prosper. Good procurement involves ability to gain the long-term cooperation of suppliers, who are as important at the starting point of our operations as customers are in the end use of our products.

Thus, procurement should be—and is in Koppers—a management function. Procurement calls for a vast storehouse of knowledge, aggressiveness, tact and judgment. A procurement department must have skilled technicians in many fields.

Selection of men who can skillfully carry out the management function of procurement is of major importance in any business or industry today.

Brehon Somervell
Chairman and President
Koppers Company, Inc.

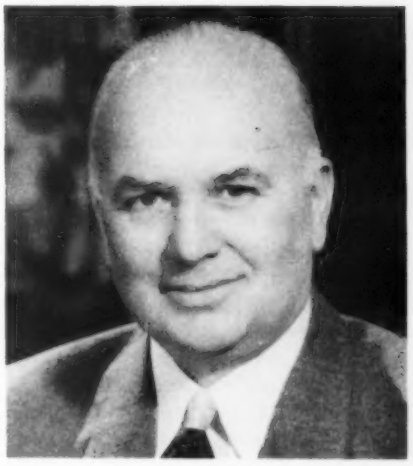
PURCHASING EFFICIENCY REFLECTED IN FINANCIAL RESULTS



THE importance of the purchasing function in our organization is amply demonstrated by the fact that, year after year, more than one-half of our total income is paid out for materials, supplies and services. In view of this, it is obvious that the efficiency of purchasing, from the standpoint of both price and quality, is directly reflected in the financial results of our Company. We fully recognize the human side of purchasing, realizing that the manner in which dealings are conducted will lead to either good or bad relationships. We are sellers, as well as buyers — a fact brought home to us because many of our suppliers are also consumers of our products in varying degrees — and we try to extend on the buying side the same kind of consideration that we appreciate on the selling side. We have always regarded purchasing as a major part of our business activities.

Ernest T. Weir
Chairman
National Steel Corporation

HALF OF SALES DOLLAR SPENT BY PURCHASING



WE operate in a highly competitive market and over half of our sales dollar is spent for materials, equipment and services. The Purchasing Department, as a part of management, is delegated the responsibility of obtaining full value for the money we spend. The importance of attaining that objective is evident and has long been recognized.

Furthermore, we value highly the good will created by our Purchasing Department in according fair treatment to all those who call upon us, and in performing its functions in an honest and straightforward manner consistent with good business practice.

E. J. Thomas
President
Goodyear Tire & Rubber Co.

SUCCESS OF MANAGEMENT PLANNING DEPENDS UPON PURCHASING TO MAJOR DEGREE



IN an industry where competition is so keen as in chemicals and for a chemical company so diversified as American Cyanamid with an expanding growth potential, the purchasing function is one of the strongest links in our chain of operation. Weaken that link and our whole structure becomes less efficient, less productive, and, of course, far less profitable.

Cyanamid's Purchasing Department must not only solve the problem of today's supply uncertainties along standard, established lines. It must also be prepared to purchase new ingredients for new products at the right time, in the right quantities, and at the right price.

Versatility and flexibility are essential. Sound technical knowledge is also called for because we buy chemicals as well as make them. And a constant awareness of the heavy responsibility borne by Purchasing is always necessary. To a major degree, upon the effectiveness of the purchasing function rests both the fruition of research and the success of management planning.

K. C. Towe
President
American Cyanamid Co.

EXAMPLES OF COST SAVINGS MADE BY DIVISION PURCHASING AGENTS

of Rockwell Manufacturing Company

Saving 46% per unit

Steel glass-spacer part had been previously formed and plated at Pittsburgh, after purchase of material. Cost was .13012 each. New plastic spacer ring (no die cost involved) was recommended, at cost of .7¢ each; saving .06012 per ring; saving 46% per unit.

Savings per unit $10.63 each

Price of strainer body was reduced from $46.33 each to $35.70 each, or $10.63 per unit. Saving effected by changing from loose pattern to plate-mounted pattern adapted for production runs. Estimated annual saving $2126.00.

Save 50c each on Tangent Gear

Former price of cast brass tangent gear was 72¢ each. Part had formerly been purchased as plaster mold gear blank, teeth had been cast and shop was machining all finished parts. Pattern was made for producing sand castings. Though cost of machining remained the same the price was reduced to 22¢ each, a saving of 50¢ per unit. Estimated annual savings $2,000.

Savings $14.54 per unit

Pattern equipment for meter body was used for both cast iron and steel castings. Due to increased production, new pattern was made to be used for cast iron castings only. Original pattern is being used for steel castings only. Cost of shipping patterns from one foundry to another was eliminated. Estimated annual savings placed at $872.40.

Save 64% Per M on Cap Screws

5/16-18 x ⅝ hex head heat treated cap screws were being used on certain assembly. Purchasing Agent felt that use of alloy steel screws was unnecesary, and engineering department approved substitute. Price formerly paid was $23.90 per M. The cost of the substitute is $8.64 per M, marking a saving of 64%. Annual savings placed at $534.

Carbon Strip Steel Saving

By change in vendor and change in carbon content of carbon strip steel from SAE 1080 to SAE 1075, .047" thick for handsaws, former price of $16.25 per C lbs. was reduced to $11.20 per C lbs., a saving of $5.05 per C. Estimated annual savings placed at $36,360. The SAE 1075 recommended by Purchasing Agent was given thorough test and proved satisfactory for use intended.

Reduction on Iron Castings

Cast iron meter part—cost $1.14. By changing source of supply from critical labor area, new source reduced cost by .266¢ per unit. Based on annual usage, the saving on this casting amounts to $47,952 per year.

Quantity Buying of Hand Soap

Saving of 1½¢ per pound was made on hand soap. Former price was 17¢, but by increasing order to ten barrels (300# each) price was reduced to 15½¢, making a saving of 1½¢ per pound. Saving on initial order was $45.00.

Permanent Mold Reduces Machining

New permanent mold for producing special part, makes possible machining cost saving of .1166 each. Estimated annual usage of part calls for 10,129 pieces, making a machining saving of $1,181.04, less mold cost of $760, or net saving of $421.04.

$4.78 Saving on Valve Plug

Price formerly paid for special valve plug was $16.73. By changing to vendor better equipped to produce the plug, the price was reduced to $11.95 each, making a saving of $4.78 per unit. Saving on first order was $1,434. Estimated annual savings are placed at $9,560., less $1,400. non-recurring die charge.

Cost Per Unit Cut 98c

Because of increase in orders for cover forging, Purchasing Agent felt increased volume warranted cost of $502. for sinking die. The price of the units was reduced from $3.50 each to $2.52 each, a saving of 98¢ per unit. Saving on initial order was $392. Annual savings are placed at $1764. minus cost of die, making net saving of $1,262.

Additional Pattern Saves 75c per Unit

Float casting was costing $1.50 per unit. Purchasing had additional pattern made at cost of $30. to fill up board for better price per casting. Price cut in half, reduced to 75¢.

Powder Metal Part Cuts Cost

Small flag collar for meter was formerly produced as brass stamping at cost of .02222. Purchasing agent suggested substitution of powdered metal part. In addition to saving brass, this made for improved design, and the unit cost was cut to .01089—a saving of .01133 per unit. Estimated annual savings are placed at $3,896.

Save $.72 Per Cover

Our box cover of cast iron formerly cost $1.83. Purchasing agent suggested change in design for the part, placing pattern with new source of supply, with result that price per unit was reduced to $1.11 each. Estimated annual savings are placed at $6,048.

Envelope Standardization Makes For Big Savings

Office Supplies buyer suggested standardization of #10-24 envelope to conform to other envelope standards, making unit standard for company use. Price of envelopes as formerly designed and printed was $8.42 per M. New price is $3.72 per M, a saving of $4.70 per M. By standardizing the envelope for use by all members of the Rockwell group, savings run into thousands of dollars per year.

Making Instead of Buying

Purchasing agent felt that cost of small door front for cash register unit was too high. Outside source was charging 19¢ per unit. He took the matter up with the shop and cost department and found that shop could make unit for 14¢ each —saving 5¢ per drawer front. Annual saving placed at $120.

Saving on Laminated Plastic Parts

Original supplier was having difficulty getting necessary material, and deliveries were unduly extended. Purchasing agent secured approval of engineering department on samples from another company which, it was learned, could fabricate parts at considerable lower cost by different method. Order with original supplier was cancelled. Saving on first order was $7,000 with tool expenditure of $400.

Save on Crating

Yellow pine was being used for crating. Purchasing agent had shop try out western pine, which proved entirely satisfactory. It is not only lighter in weight, but saving in cost per carload ran between $150. and $200.

Save 16,000 lbs. of Steel

On suggestion of purchasing agent material for bearing closure nut was changed from carbon bar stock to zinc die cast job. This not only saved some 16,000 pounds of steel for other uses, but resulted in reduction in price from .065 per unit to .046 per unit, a saving of .021 each. Annual saving $1050.

Net Saving on Component Parts for Complete Unit

In a study just completed, it was found that one of our products contained nine component parts on which price increases had been granted since 1948 totaling .6726¢ per unit. However, this same unit contained thirteen component parts on which price reductions had been secured since 1948 which totalled $1.5649 per unit. On these 22 component parts on which price changes have occurred since 1948, the net reduction in the material cost for each unit amounted to .8923¢.



Saving by Substitution; Cap screws, price reduced 64% per M. Also see examples of cost savings on page 96.)



Saving by improving pattern equipment. Strainer body. Price reduced by changing from loose pattern to mounted pattern.



Saving by Change of Source. Square head brass pipe plugs. Change of source reduced price from 16.73 to 11.95 per hundred.

bor, overhead and profit total its cost?

"(9) Will another dependable supplier provide it for less?

"(10) Is anyone buying it for less?"

Superficially this program would seem to impose onerous obligations on our purchasing men. Since its inauguration and the issuance of the management approved manual, the men have accepted the challenge wholeheartedly. Our plant managers and their respective department heads are most cooperative. In their purchasing work our men also think of production, and of sales, they realize that competition is not dead—that procurement is the first step in sales.

Purchasing Men Get Results

Our men are literally digging into this gold mine. They are making savings on many products ranging from cartons to coal, metals, lumber, castings, and forgings. Their approach is practical, as evidenced by the following recital of activities of one of our men—a purchasing agent who was practically reared in a machine shop and metal working plant.

He is intimately acquainted with lathes, automatics, milling machines, drills and other plant equipment. He is familiar with the various methods of metal working and metal forming —milling, drilling, screw machine production, stamping, molding, casting and other methods. He makes plant visits continually—he knows what suppliers are prepared to make and what they cannot make.

Say he gets a requisition for a thousand castings of a certain kind. He looks at the job from the standpoint of machining these castings in our own plant. In many instances he has made design change suggestions that have cut machining to a minimum. He will tell you that a plan or specification may indicate 3/16" tolerance, that this calls for unnecessary machine time, and that by reducing the tolerance to 1/16" two cuts can be saved in bringing the part to size as only one cut will be necessary. The results of his suggestion include saving metal and saving machine time in our plant.

He has found it time and money saving where foundries may be making the same type casting from two different metals, to supply two sets of patterns. Also, he has found it possible to make savings approximating 10% and more on unit costs, by supplying duplicate patterns to foundries to whom he has awarded production runs.

He is also responsible for a repeat saving by giving study to the use requirement of cap screws called for on a recent requisition. Discussing the matter with our engineers he learned that the pressure of 150,000 psi indicated was not necessary because the product itself was not subjected to that strain and subsequent stresses in service. The result was that engineering O.K.'d the use of 5/16" cap screws with 90,000 yield.

In another instance he received a requisition and plan, calling for a compression spring designed with a special machine loop. He questioned the need for the special loop, discussed the matter with the engineering department, with the result that a standard spring hook was O.K.'d for the part. Through this eagle-eye approach to small things, shall we say, he is responsible for effecting an annual saving of $300 on this item, which will continue for years to come.

He has also initiated changes in materials used on certain jobs, with considerable saving of both time and money. Typical is the suggested use of free machining brass instead of phosphor bronze for certain parts, a suggestion duly approved by engineering with savings running up to 15% on some parts.

He has a penchant for acquiring a rather complete picture of a supplier's facilities, production and materials used. He has developed friendly contacts with suppliers who are making production runs of various products in brass, utilizing the same size brass called for by our products. By consolidating our small orders with their production runs—say 1000 pieces which may use 300 pounds of brass, he has been able to secure the price advantage made possible by their quantity buying of brass from the mills.

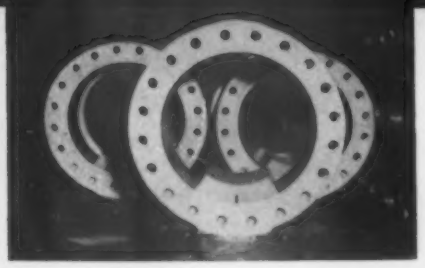
The cooperation of suppliers is one of the invaluable benefits of plant visits, and we encourage our men to become acquainted with our vendor's personnel as well as with their facilities.

New Supply Services

While we fully appreciate the dependable services that have been rendered by our long time suppliers, we urge our purchasing men not to lean too heavily on purchase records and past performance, for the very simple reason that progressive suppliers who have installed new equipment and methods for faster and better production can produce equal or better products at lower prices, and that they are willing to pass on the benefits of their lower cost production is all too evident in quotations our men are receiving from them. A good example of this is a connecting arm that one of our suppliers had been supplying in lots of 500 at 19¢ each, and below that figure the price was 32¢ each. A canvass of new supply sources unearthed a supplier with more modern facilities who was glad to make the arms for 12¢ each.

It of course is understood that no change in specifications is made without the approval of engineering and using departments. Our plant men are giving us wholehearted cooperation for they, too, are anxious to keep their costs down. As will be noted from the partial list of cost savings initiated by some of our men (page 96), it is evident that we are getting results.

As a matter of fact, the Rockwell purchasing manual serves as a typical example of how savings can be effected. It consists of 81 pages of text divided into 21 sections. We estimate that in its preparation we saved $10. a page by having the text typed on electric typewriters, and the pages reproduced in one of our multilith departments. If a page needs revision, it is a simple matter to retype it—a job that is far quick-



Saving by Duplicating Patterns. Cast meter body. Duplicate patterns at iron and steel foundries saved money.

er and far cheaper than commercial typesetting.

There is no question that cost-reduction by purchasing is one of the important yardsticks of purchasing department efficiency. Buyers who have been successful in effecting cost savings, grow more so as time goes on.

We feel that a buyer is competent when his plant associates, vendors and the salesmen who call upon him, respect his judgment. That type of buyer will make good savings, and accordingly advance in purchasing, because he is qualified to sell his ideas to the people with whom he works.

We who have long been associated with Purchasing, know that many purchasing men have to their credit some remarkable cost saving activities. They may have an inner-feeling of a job well done, but we feel in view of the fact that a "penny saved is a penny earned", that management should know of these accomplishments by the purchasing department. I am convinced that the reports of cost reductions or savings by purchasing will go far in enhancing the standing and prestige of purchasing. Among other things they demonstrate that properly manned purchasing departments backed by suitable policies can make outstanding contributions to company profit, and the maintenance of its competitive position.

We have not yet gotten into full swing on this program, but that substantial savings are being made, is reflected in the constantly growing volume of savings reports we are receiving. These reports are of no small interest to our management.

Practical Inventory Control

There is another very important phase of our overall cost-saving program, and that is inventory control. I feel that in addition to purchasing efficiency, keeping the plant running smoothly, and profits through savings by purchasing, that the oft asked question "What's ahead for Purchasing" depends to some extent on what Purchasing can do to effect practical inventory control.

To cost-conscious management,



Text of Purchasing Manual was written on electric typewriter and multilithed in stationery department at saving of $10.00 per page.

the proper handling of inventories is more than a means for economical procurement, quality, standardization and uninterrupted production. Proper handling of inventories is a means for attaining the goal of lower *real* cost of materials at time of use, fewer dollars on the shelf, and less write-off of surplus materials. It is a highly profitable activity in itself.

We should regard inventory as "money" on which the company pays rather than collects interest. It is money always in danger of devaluation. Uncontrolled inventory might well be termed industrial cancer. It is especially dangerous because there are no warning signs. Purchasing is easy. Sagging stockroom shelves are pleasant, not painful to the men in the plant. Most deceptive of all, excessive stock produces a seemingly advantageous competitive position. On the other hand, hand-to-mouth buying is often the basis of delayed production due to material shortages, and costs mount despite the economies of head-spinning turnover which plummets various costs.

Both over-stocked and the understocked plants evidence the need for inventory controls or materials management to insure that proper inventory balances are maintained. Aside from being of major import from the standpoint of company finance and profits, good controls are of prime importance to production, and likewise are a means for effecting purchasing economies. Materials management is a vital responsibility. It is an important entry on our purchasing department cost reduction agenda, for it too is a means for adding to company profit.

ROCKWELL MANUFACTURING COMPANY AND DIVISIONS

PURCHASING MANUAL

September, 1950
Section 19-Page 5

(Use the Internal Correspondence form)

Subject: PURCHASING DEPARTMENT REPORT OF SAVING

_____Division. Date _____

Purchasing Agent or Buyer

Requisition Number

Description of Material

Reason for Revision (substitute material, standardization, change of vendor, quantity increased, negotiation, purchasing recommendations, quality improvement, or other.)

Former Price

Price this Order

Savings per Unit

Quantity this Order

Savings this Order

• • • • •

Estimated Annual Units Purchased

Estimated Annual Savings This Item

_____
Division Purchasing Agent

Send original to Vice President-Purchasing, Pittsburgh
Retain copy for Division file.

Purchasing Manual indicates kind of information that is to be shown in Reports of Savings by division purchasing agents.

Saving by — Specification Analysis, Product Analysis, Vendor Analysis, Quantity Analysis

By Fred W. Frohn, Purchasing Agent, The Bristol Company, Waterbury, Conn.



Fred W. Frohn

ALL of the members of our purchasing department are deeply conscious of the profit potential that lies in industrial procurement. We have accepted the challenge to do a better job from a price standpoint, by a four-point program that is constantly paving the way for interesting savings.

The success of our efforts is attested by the fact that though prices in general have reflected an upward trend during the past year, the record shows that the dollar total of price decreases is far greater than the total of the increases. And I can modestly say for our purchasing staff that a large number of these decreases have been made possible by our four-point purchase analysis program, the backing of our management, the complete cooperation of our plant men, and the all-important fact that the members of our purchasing staff are production minded. Our four-point program rests on specification analysis, product analysis, quantity analysis and supplier analysis.

We feel that we have a well grounded staff to administer this program. Personally, prior to entering purchasing some eleven years ago, I spent 13 years in the shop. J. H. O'Connor, purchasing methods engineer, who has been with Bristol for the past seven years in production and purchasing, formerly was supervisor of methods and procedures, Ranger division, Fairchild Engine and Airplane Corp., Farmingdale, New York. Gregory Phelan, buyer, is a tool maker and shop methods expert who has had several years' experience in production, and E. J. Griffith, buyer, has been with Bristol for more than ten years, specializing in wire buying.

We are well acquainted with the production facilities and the products of our own company. We work closely with our engineering, production and maintenance men, and give new products of the Bristol Company close study.

Also, we constantly strive to get all the facts about new technological developments that may affect our production and *our buying*—from salesmen, the press and industrial expositions. We have found it of practical value to analyze new developments not only from the standpoint of the Bristol Company, but from the standpoint of their utilization by old and new suppliers.

The Bristol Company is a medium size industrial plant, giving employment to some 1100 people in the manufacture of recording and regulating instruments and accessories. Our stock lists some 15,000 items and the purchasing department is responsible for the annual expenditure of about $4,000,000.

I mention these facts as proof that the purchasing procedure of purchase engineering, product analysis, or value analysis, is by no means restricted to the giants of industry. We are daily proving that these procedures can be easily and profitably employed by any purchasing department manned with a buying staff that can deal on an even plane with production departments, sales engineers, and vendors. The fact that over the years we have been able to make substantial savings and also cooperate with our engineering and production departments in cutting their costs, has added materially to the prestige of the purchasing department.

There are many angles to this broad subject of Purchasing for Profit. I previously stressed the need for qualified personnel—buyers who know why they are buying what they are buying, as well as potential supply sources. Now let's consider the purchase record.

Examples of Specification Analysis

(A) Molded hard rubber washer of specific dimensions was among purchased components of a new product. Supplier's quotation $.05. Year's estimated usage $150. Blue prints showed that washer is used under head of mounting screw of another component. Engineering decided molded washer was not necessary. Standard stock fibre washer was approved, the cost being $.001 each, or yearly cost of $3.00 instead of $150.

(B) Bill of material for new product lists special electrical component, price of which was $9.80; annual usage $14,700. Survey of manufacturers revealed similar item which had been adopted as standard by certain company. Collaboration with Engineering in minor redesign problem resulted in adoption of new part, the cost of which is $2.65 each. Annual expenditure $3,975 instead of $14,700.

Examples of Quantity Analysis

(A) Assume your requirements are 15,000 each of 100 sizes and types of standard screws per year. Management's inventory policy is three months' supply. Yearly cost at $10. per M is $15,000. Average value of inventory (½ of 3 months' supply) is $1875. By purchasing at bulk price (15,000 per lot) we have:

1,500,000 screws, average price $5.65 M	$8475.
Average inventory (½ of 12 months' supply)	4237.
Increase in average inventory	2362
Yearly SAVING ($15,000 minus $8475)	6525.

Yield on additional investment—276%.

(B) Another rat-hole where profits disappear is created by policy of buying certain components only upon receipt of customer order, regardless of existing repetition. For example: Item—Steel base and panel. Price in lots of 1-5 is $30. each. Price in lots of 75 is $8. each.

Present policy: 100 units per year at $30. each,	$3000
Stock method, 100 units per year at $8. each	800

The stock method involves an average inventory investment of $300., ½ of 75 units at $8. each, but this is peanuts compared to the $2200 saving which represents an annual yield of 1360%.

Analysis and Classification of Vendors

It is common practice to secure quotations from two or more suppliers. We believe it equally important to classify and analyze vendors. For example, purchases may involve varied sheet metal items such as cases, chassis, boxes, plates, panels, etc. There are hundreds of fabricators of such parts. However, price quotations by a large number of them would vary as much as 500% or more. In other words, only a small number of them are ideally equipped to make certain items. Accordingly, as shown by following quotations from Vendors A, B, C, and D, it is evident that efforts to classify suppliers will pay big dividends:

ITEM	A	B	C	D
Panel, 3/16	$536.	$425.	000	$650.
Chassis, 16 Ga.	3.30	2.20	1.02	1.96
Case	16.	35.	20.	12.50
Plate, 10 Ga.	2.60	1.45	1.84	1.04

As is obvious, (1) Vendor B is choice for heavy panel work, (2) Vendor A is not equipped for small quantity fabrication. (3) Vendor C is best suited for small light-gauge work. (4) Vendor D is ideally set up to fabricate medium heavy items in fair quantity.

Taking Advantage of Price Breakdowns

(A) Purchasing several items of brass rod on a single order results in big savings: For example, 100-300 lbs. is priced at ton price plus 14¢ per lb., an increase of about 40%.

(B) Many wire manufacturers permit grouping of several colors (same gauge) with prices dropping as much as 15%.

(C) Makers of certain electrical components discourage small orders, and products can then be purchased only through jobbers. Price difference is as much as 50%. You can buy 500 pieces direct for less money than 300 pieces through jobbers.

The purchase record should not be regarded as an infallible index to the best sources of supply either from a price or product standpoint, regardless of the history it carries. As stated, we have made a special effort to keep abreast of new developments. These may be machine tools and other plant equipment, or new methods that make for increased and lower cost production. They may be new alloys, new plastics and new applications in both the thermostats and the thermoplastics —for instance, the remarkable industrial applications of nylon and teflon, and the fiber-glass laminates.

The myriad of new materials, equipment and methods play an important role in determining the degree to which we should depend upon purchase records, or court new suppliers, for the extent to which suppliers may have adopted new equipment and methods, and their familiarity with new materials and their uses, determines their value to us. The supplier who uses outmoded, high-production-cost equipment and methods cannot expect to penalize customers because he is not up-to-date.

This reflects the big values of constant plant visits and personal contact with suppliers. They enable the production-wise purchasing agent to gain first hand knowledge as to whether a supplier has the proper equipment for economical production of orders that are ready to be placed.

Incidentally, our works manager is one of those aggressive fellows who has a penchant for learning the "know how" of things. He frequently visits suppliers with members of the purchasing staff. This has been to our mutual benefit for it has given him a first-hand picture of how many of the things we buy are produced, an understanding of the problems that confront suppliers and in turn the purchasing department.

The industrial buyer should never be satisfied until he is sure that he has the right source of supply. In this connection, we should like to put in a good word for the small supplier, especially those new suppliers who may be operating comparatively small shops. It is our feeling that many of them are successful because they have elected to remain small. Often these small suppliers are highly skilled specialists along certain lines who are able to give us dependable service on small orders for special and complicated parts that big companies do not care to handle except at what we consider prohibitive prices.

A typical case centers around rubber covered chart rolls, the prices on which jumped to an unjustified high. In our search for a new supplier, it came to light that the large company with whom we had been dealing was not equipped to produce these rolls at a fair price. The new supplier that we unearthed not only had such equipment, but is able to furnish the rolls according to our specification for $1.85 as

against the old supplier's price of over $4.00.

In view of technological changes constantly taking place, the importance of vendor analysis cannot be over-emphasized. This is evidenced in the procurement of a steel metal part that was costing us $2.45. We were not satisfied with the price. Quotations from several suppliers reflected little difference in price. We continued our search for a new supplier, making contact with a concern specializing in stamping with heavy press equipment. This concern quoted us a price of 78¢. In order to avail ourselves of this figure it was necessary for us to spend $1390 for tooling. However, in view of the fact that this particular unit is a standard part that will be used for many years to come, it was evident that the tooling cost would be amortized in a matter of a few months, and thereafter we would enjoy a saving of over $2,000 a year.

In this case we had twelve quotations, eleven of which were within a few cents of each other. The 78¢ price was made possible by the fact that the company quoting it, had the proper equipment that enabled it to give us the new low price and yet earn a fair profit for itself.

On the other hand, we are glad to help old suppliers develop new production methods that make for lower costs. In one instance where our engineers collaborated with a supplier in developing new tooling for the production of a panel, we were able to get a reduction in price from $42.00 to $26.00.

We also enlist the support of sales engineers and suppliers, in devising means and methods of reducing costs. In this connection, we have just issued a new quotation-request form on which we invite suppliers when submitting bids according to our prints or specifications, to also quote on the nearest standard part they may have, that may meet our needs.

Standardization of components, large and small, opens the way for varied savings, in production, inventory, and purchasing. We are giving this subject close study. We have proved, for instance, that the micro-inch tolerances indicated in specifications or in blueprints are not always necessary. In many instances our standard parts recommendations have met with the approval of our engineers, with resultant savings in purchase-price and on our assembly lines. Of course, the purchasing department does not overlook the fact that standards widen competition, and often make possible delivery service that would not otherwise be possible.

This matter of broadening supplier competition was dramatically emphasized in connection with our purchase of wire. Not only have we been able to radically reduce prices on a certain kind of wire but in so doing we have helped our sales department to regain markets that were going to various competitors who do not have the high overhead we have in our laboratory and technical departments.

On asbestos covered wire, for instance, our buyer has been able to effect remarkable savings. For many years this was a one-supplier source product, but with the development of the national defense program, priorities, allocations, etc., we were experiencing extreme difficulty in getting delivery. By making a thorough vendor analysis, our buyer was rewarded with a drop in price of approximately 50% per thousand feet, and instead of a four to eight months lead time, we were getting delivery within three weeks.

Our experience demonstrates that giving "purchase analysis" attention to small components and materials, as well as to major purchases, pays good dividends. For example, our thread specifications for certain products called for a Class 3 fit, and we were paying $1.40 to $1.50 each for taps. We were buying special ground taps, and there was continual trouble with breakages and thread fit. After an analysis of our difficulties with our engineers and supplier, our specifications were changed to call for a Class 2 fit, with the result that we are now buying commercial ground taps and saving around 60¢ each.

Another comparatively small item on which we have been able to effect permanent savings, is the fabric used on our wet and dry-bulb thermometers. We had been using linen on the tubes, but when the price of linen reached $4.00 and over a yard, we asked our laboratory to test linen-weave rayon. Their tests showed that the linen-weave rayon has better moisture absorption than the linen formerly used and gives better service. Moreover, we are now saving $2.50 a yard on the fabric on these instruments.

We use thousands of small laminated plastics parts. In one case where we felt that the specifications were a handicap to obtaining a better price on washers our study convinced us that the canvas or linen grades specified were unnecessary. At our request our engineers tested paper base washers. These proved entirely adequate and in some instances superior for the use intended than the cloth grades formerly used. By this change we reduced our cost from $25.00 a thousand to $13.00.

We buy a large variety of castings. In large production runs we



Purchasing Methods Engineer J. H. O'Connor and Purchasing Agent Frohn discuss a quotation.



Foreman E. L. Hotchkiss and Purchasing Agent Frohn inspect an interesting job. The rim was formerly purchased as a stamping, but by changing over to a spinning job, it was produced at one-third the former cost.

have been able to save 10% and more per unit by supplying the foundry with multiple patterns so that several pieces can be cast at one time. This also makes for better delivery service.

We also give thorough study to make-or-buy problems, especially where we feel that quotations are out of line. It is our experience that on short runs, suppliers can quote a price we cannot compete with on initial setups. On the other hand, where larger production is concerned, if we have the proper equipment, we have often found it cheaper to have the parts run through our own plant. This also enables us to charge off a part of our plant overhead to such jobs.

In the foregoing and in the special presentation of case-histories on an accompanying page, there are several typical examples of how our Purchasing Department has reduced costs by product analysis, specification analysis and vendor analysis.

The factor of quantity analysis likewise opens the door to excellent cost reductions. Quantity analysis should be considered from the standpoint of changing production methods, and the savings or "earnings" on added investment. It will be found that the savings made possible by buying 200 units instead of 100 units, or 1000 instead of 500, fully justifies the added investment in inventory. An instance involving change in production methods involved an instrument case, which our sales department felt would be in limited demand. As planned, the volume was not big enough to warrant the cost of dies, so we had the case made by sand molding, at a cost of $12.65 each. However, with sales increasing ten-fold, we had the case die-cast, with the approval of engineering and sales, securing a price of $7.50. The cost of necessary tooling was offset in a short time.

Previous to last year, another department had the job of scrap disposal. However, last year in connection with the shortage of brass, the brass companies asked the Purchasing Department if we could send them our brass scrap. We explained to our plant engineer that in order to retain our supplies position, we would have to return brass scrap to our suppliers. Accordingly, the disposal of brass scrap was turned over to us.

The brass companies gave us the maximum OPS ceiling price, which was much in excess of prices formerly received. We then checked the methods of all scrap disposal and found that the prices received were far below the market. Management took an interest in the subject, with the result that all scrap disposal was turned over to the Purchasing Department. We instituted a program of scrap segregation, sought new bidders, and now get top prices for it. Last year we received several thousand dollars more for the scrap than was previously received on a similar tonnage.

We also developed a plan with our suppliers of corrugated cartons that has made for considerable saving in our carton inventory and investment. The diversified nature of our products makes a wide assortment of packing and shipping containers necessary, and it had been the policy to keep our container stocks at a constant maximum to assure that there would be no shipping delays due to container shortage. We were using considerable warehouse space, and had about $15,000 tied up in containers.

By special arrangements with our supplier under which we furnish him each month with a list of our requirements for the next month, we have been able to cut this inventory in half, and at the same time assure our shipping department of an ample supply of containers. This has been accomplished by setting stock maximums-minimums for containers most in use. When stocks reach the minimum, we reorder to the maximum point. Upon receipt of our monthly list, the supplier can group our requirements according to the size of the order and his facilities. This plan has been of benefit to the supplier and to us. We have reduced our inventory, eliminated the issuance of small orders, and have an assured supply of cartons. On the small runs we may not receive the price-wise benefits on long runs, but our program has proved less costly than carrying the heavy inventory.

We recently inaugurated another phase of product analysis, that we believe will pay off. This plan involves the study of various standard products that we stock and buy frequently. It is out of the question in view of the large number of items carried, to make an analysis of all of them. However, we feel that by procuring samples and regularly making special study of a few of the repeat items, that we will find ways to reduce costs. A physical examination of a part reveals entirely different values than are apparent from reading a blue print. Our plan is to study the materials, the design, and end use of the part as well as price, supply sources and methods of production. Another program we have just started involves cost-analysis work with our suppliers, based on their breakdown of costs based on material, labor and overhead. We want our business with our suppliers to be profitable to them. At the same time we feel it would be to our mutual benefit, if advantage is taken of the technical skills of both buyer and seller, looking to cost reductions.

Purchasing ..... Partner in Modern Management

Industrial leaders emphasize importance of Purchasing function in the attainment of management objectives. Statements prepared for the May 1952 issue of PURCHASING Magazine.

EQUAL STATUS WITH OTHER STAFF DEPARTMENT HEADS



Crawford H. Greenewalt
President
E. I. du Pont de Nemours & Company

FOR many years, we in the du Pont Company have recognized procurement as an essential management function. The integration of purchasing with production, sales, research, and the other activities of the company, is essential to a smooth-flowing managerial team. Our centralized Purchasing Department reports to the Executive Committee and its director has equal standing with other staff department heads. It is responsible for procurement of materials for construction and operation of plants; development of sources of new, improved, or alternative materials; and forecasting of market trends. Some idea as to the magnitude of this department's operations may be gained from the fact that our purchases in the year 1951 aggregated nearly $700 million from more than 30,000 suppliers. We expect our buyers to be exceptionally well informed on their materials, fair in their dealings, and to develop and maintain good will and respect of others. This is as important in a buyer as it is in a salesman.

COST REDUCTIONS BY PURCHASING OF GREAT IMPORTANCE



A. W. Peake
President
Standard Oil Company — Indiana

PURCHASING in our company is a major function. This is not merely because of the magnitude of the expenditures, but is also due to the effects of the function on our profits through cost reduction, timely procurement of proper quality goods and services, and good public relations. It is a top-level specialized function requiring a particular type of knowledge and judgment to analyze needs. It also requires an alertness to market conditions and an ability to locate reliable sources, to negotiate ethically and wisely with suppliers, and to build good will.

We expect our Purchasing Department to relieve other departments of nearly all matters concerning procurement, thereby enabling the other departments to devote more complete attention to their primary functions, and through specialization to effect procurement more efficiently than could otherwise be done.

As significant to us as the purchasing function has become, we expect its importance to grow.

VITAL TO SUCCESSFUL OPERATION



AT RCA the art and science of purchasing has achieved a professional and management status that ranks equally with sales, engineering and other top management responsibilities. We are convinced that the prominence we give to the purchasing function is vital to the successful operation of our business. Just how vital is perhaps best indicated by the fact that our procurement people each year spend approximately half of our sales dollar for the raw materials and components required for the products we make and sell.

My own experience in Washington during the last war* served to confirm my belief in the importance of good purchasing management. Today at RCA the direction of our purchasing operations is the direct responsibility of an executive official who is a member of our executive staff.

Our successes in large measure are dependent upon the cooperation we receive from our sources of supply. We think of our suppliers as partners in our business, and consider their facilities an important part of our production lines. Frankly, we are proud of the relationships we have built up with the 5,000 business firms who furnish their products to us. While we are a fairly large company, we lean heavily on many small companies to help us in our work. About 70 per cent of our suppliers are classified as small business organizations, and almost half employ less than 100 men and women. We strive constantly to further strengthen the close ties we have built up with our suppliers, because we believe a friendly and business-like buyer-seller partnership contributes immeasurably to our country's successful way of life.

Frank M. Folsom
President
Radio Corporation of America

*Mr. Folsom was chief of Navy procurement in 1942 and 1943—Editor.

MANAGEMENT LOOKS TO PROCUREMENT MEN FOR PROFIT



ANYONE who entrusts another individual with $10 to make a purchase wants that money spent wisely and well. How much more important for industry, which purchases billions of dollars worth of goods each year, to get value received for each dollar spent.

In the present era of high taxes, high labor costs, material shortages, many governmental restrictions and allocations, industry looks to its procurement men more and more as holding high responsibility for determining whether or not it makes a profit. Wise buying of quality materials often can trim a break-even point.

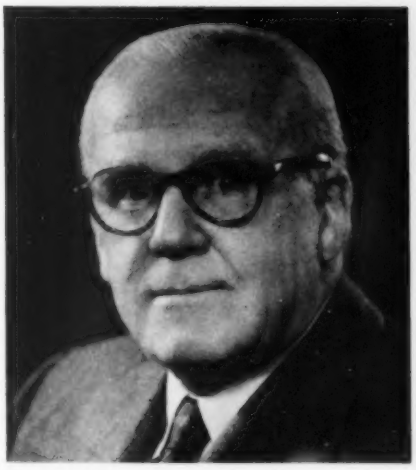
Yet procurement men must not seek to "squeeze" suppliers. If they do not prosper, industry cannot prosper. Good procurement involves ability to gain the long-term cooperation of suppliers, who are as important at the starting point of our operations as customers are in the end use of our products.

Thus, procurement should be—and is in Koppers—a management function. Procurement calls for a vast storehouse of knowledge, aggressiveness, tact and judgment. A procurement department must have skilled technicians in many fields.

Selection of men who can skillfully carry out the management function of procurement is of major importance in any business or industry today.

Brehon Somervell
Chairman and President
Koppers Company, Inc.

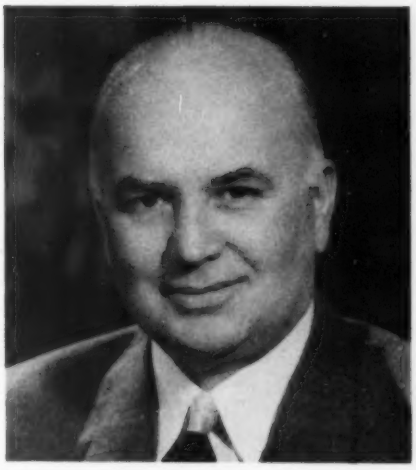
PURCHASING EFFICIENCY REFLECTED IN FINANCIAL RESULTS



THE importance of the purchasing function in our organization is amply demonstrated by the fact that, year after year, more than one-half of our total income is paid out for materials, supplies and services. In view of this, it is obvious that the efficiency of purchasing, from the standpoint of both price and quality, is directly reflected in the financial results of our Company. We fully recognize the human side of purchasing, realizing that the manner in which dealings are conducted will lead to either good or bad relationships. We are sellers, as well as buyers — a fact brought home to us because many of our suppliers are also consumers of our products in varying degrees — and we try to extend on the buying side the same kind of consideration that we appreciate on the selling side. We have always regarded purchasing as a major part of our business activities.

Ernest T. Weir
Chairman
National Steel Corporation

HALF OF SALES DOLLAR SPENT BY PURCHASING



WE operate in a highly competitive market and over half of our sales dollar is spent for materials, equipment and services. The Purchasing Department, as a part of management, is delegated the responsibility of obtaining full value for the money we spend. The importance of attaining that objective is evident and has long been recognized.

Furthermore, we value highly the good will created by our Purchasing Department in according fair treatment to all those who call upon us, and in performing its functions in an honest and straightforward manner consistent with good business practice.

E. J. Thomas
President
Goodyear Tire & Rubber Co.

SUCCESS OF MANAGEMENT PLANNING DEPENDS UPON PURCHASING TO MAJOR DEGREE



IN an industry where competition is so keen as in chemicals and for a chemical company so diversified as American Cyanamid with an expanding growth potential, the purchasing function is one of the strongest links in our chain of operation. Weaken that link and our whole structure becomes less efficient, less productive, and, of course, far less profitable.

Cyanamid's Purchasing Department must not only solve the problem of today's supply uncertainties along standard, established lines. It must also be prepared to purchase new ingredients for new products at the right time, in the right quantities, and at the right price.

Versatility and flexibility are essential. Sound technical knowledge is also called for because we buy chemicals as well as make them. And a constant awareness of the heavy responsibility borne by Purchasing is always necessary. To a major degree, upon the effectiveness of the purchasing function rests both the fruition of research and the success of management planning.

K. C. Towe
President
American Cyanamid Co.

GOOD PURCHASING INDISPENSABLE TO MANAGEMENT



A. B. Homer
President
Bethlehem Steel Corporation

PURCHASING is recognized today as one of the chief functions in the management of a corporation.

One vital phase of the activity is the constructive effect of good purchasing upon a company's public relations. In earlier days the purchasing office was reputed to be a tough customer who used high-handed methods. However true that picture may have been in some instances, the situation is quite different today.

In Bethlehem Steel, for example, to take the case with which I am naturally most familiar, we do business with 25,000 vendors. That is a sizable body of public opinion who will judge us by the way we deal with them. Our reputation with them very largely depends upon the tact and fairness of the purchasing staff.

Obviously, a knowledge of markets and market trends and the ability to know what is a fair price are additional essentials to the purchasing job, but there is still another point of importance, and that is the skill in finding and expediting the arrival of materials. In these recent years of shortages in most things, that has been one more factor which makes good purchasing indispensable to management.

VALUE TO COMPANY GROWTH AND PROSPERITY DEMONSTRATED



J. H. Rand
President
Remington Rand Inc.

REMINGTON Rand Inc., in keeping abreast of the demands of industry for mechanized and systematized office equipment, produces and sells a great variety of office equipment. Its products consist of over 20,000 items fabricated from metals, wood and paper among which are a large variety of mechanical and electronic devices. The Procurement Division, in carrying out its responsibility to obtain production, maintenance and supply materials, expends 30¢ of every sales dollar and obtains these materials from approximately 10,000 supply sources.

The Procurement Division occupies a most important position in our organization with representation in the top management level. This Division is staffed with experienced men having the initiative and "know-how" to control efficiently, purchases required to maintain high-rate production. During these times of rising costs, taxes and fluctuating market conditions, this well-trained organization has demonstrated its value to the growth and prosperity of Remington Rand Inc.

The use of the highest ethics of purchasing and the importance of equitable dealings with suppliers are stressed continually. Purchasing policies help to attain a maximum return from each dollar spent while at the same time maintaining good relations with our suppliers. This Division also supervises inventories of purchased materials, a very important function especially under today's conditions. It is continually on the alert for developments and improvements in purchased items for and components of our products.

PURCHASING IS IMPORTANT FACTOR IN COMPANY SUCCESS



DURING the past thirty years, the Glidden Company's purchasing department has grown steadily in stature, until today our director of purchases makes monthly reports at each meeting of the board of directors.

Once considered of relatively minor importance, our purchasing department is now regarded as an important factor in the success of our widespread and highly diversified business.

This has not been due to any change in the importance of the purchasing function, but rather to management realization of that importance.

To quote an old business axiom, "Goods well bought are half sold." That axiom strikes home with considerable force here at the Glidden Company, since our raw material costs represent almost 74 cents of every sales dollar.

In recognition of the importance of the purchasing function, Glidden di-

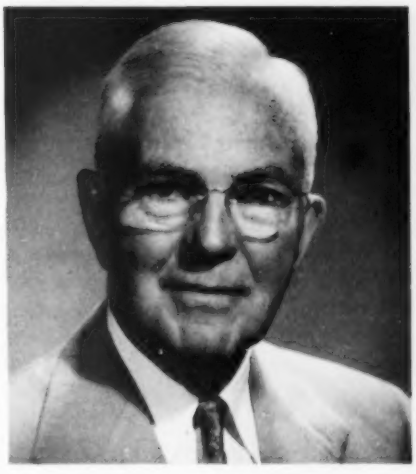
rectors themselves set major buying policies.

When our director of purchases appears before our board, he does more than just report on the state of the company's procurement of raw materials and services. Because of his constant contact with many and varied types of industries, he is in an excellent position to act as a general economic advisor. He also keeps a close watch on the company's reciprocity relationships with its suppliers.

Another benefit, among the many accruing from the operation of a properly managed purchasing department, is the fostering of amicable relations with suppliers. With the innumerable contacts made each day by purchasing people, this becomes an important facet of a purchasing department's responsibility. A reputation for integrity and fair dealing becomes of paramount importance in the days when essential materials are in short supply.

Dwight P. Joyce
President
The Glidden Company

NO FUNCTION MORE IMPORTANT THAN PURCHASING



THE premise upon which our Purchasing Division operates is that *good* products *cannot* be made from *poor* materials. Therefore, dependable, good, uniform quality from reliable suppliers is the foundation upon which we begin to build customer satisfaction into our products. Product variability can destroy reputations for quality that have taken years to build.

Owing to present day scarcities and the many complications resulting from Government regulations, price controls and the like, the procurement of dependable materials becomes more than ever a major function of any manufacturing business.

To wisely handle this responsibility our Purchasing Division is staffed with specialists each working on a particular phase of procurement and it might well be said that Purchasing is their profession.

On account of the wide variety of our raw materials coming from all parts of the world and as their supply and cost is based upon economic conditions there, it is necessary for our Purchasing Director to be well informed on world wide conditions and to inform the Board of Management of such conditions as may affect the welfare of our business.

We consider proper procurement of our raw materials of such importance that our Purchasing Director is a member of our Board of Management with Vice Presidential status and equal voice in all management problems.

There is no more important function in our business today than the procurement of our raw materials, equipment and supplies.

Charles C. Gates
President
Gates Rubber Company

PURCHASING REQUIRES HIGH ORDER OF JUDGMENT



NEVER before has the role of purchasing in manufacturing operations been spotlighted as it is now. Even when there is plenty of everything, a competent job of purchasing is important for low cost and the high efficiency of operations through the timing of the flow of incoming materials and components. But today, the head of purchasing has to be almost a magician—for performance in this area can have far reaching influence.

The enlarged responsibility placed upon purchasing requires, as never before, complete coordination with engineering, production, and the financial management of the company as well as of sales. Shortages of certain materials, and extraordinary pressure being exerted upon industry to make the most effective use of substitute materials puts a great premium on the liaison between engineering and purchasing. Because the average sales department is anxious that nothing avoidable interfere with promised deliveries, purchasing is feeling unusual pressure to be on the conservative side. Yet such a policy—unless intelligently supervised and controlled—can result in high and unbalanced inventories tying up working capital at a time when this should be conserved in every way possible.

Purchasing, under such conditions, requires a high order of judgment, and those concerned with it should have access to all facts which will help them to program effectively.

Henry F. Dever
President
Brown Instruments Division
Minneapolis-Honeywell Regulator Co.

PURCHASING IS VITAL PHASE OF MANAGEMENT FUNCTION



PERHAPS because John F. Queeny, who founded Monsanto fifty years ago, was a purchasing agent, we have always recognized the importance of purchasing to efficient and profitable operations.

Today's complex, quickly changing and delicately balanced industrial structure only emphasizes this importance. The purchasing director and his staff must be informed, alert, flexible and farsighted to perform their primary and critical function of obtaining raw materials, equipment, supplies and services in the amounts needed when they are needed.

At the same time, we at Monsanto believe that the members of our purchasing staff must be especially aware of the human relations values of their conduct. Because they are in a position to affect the good standing of the company, they must be courteous, understanding and fair in their dealings with others. They must live up to their promises; recognize that other industries have to have time to produce and plan, just as we do. An over-zealous, indiscreet or unethical purchasing agent can do a company great harm.

In addition, the purchasing staff, because of its day-to-day activities and planning, is a supplementary but valuable source of information about the economy in general and our consuming industries and potential markets. Such information is relied on by executive management in coming to major policy decisions.

It is clear, for these reasons, that purchasing is a vital phase of the management function and that the purchasing department must be an integrated member of top management.

Charles Allen Thomas
President
Monsanto Chemical Company

IMPORTANCE OF PURCHASING CANNOT BE OVER-EMPHASIZED



PURCHASING is one of the basic functions of any manufacturing enterprise. To manufacture our products we must purchase raw materials, equipment, supply items, and various services, and in addition fulfill the requirements of our customers for equipment sold with our products.

The importance of our Purchasing function cannot be over-emphasized when we realize that it is responsible for spending nearly fifty percent of all monies expended by our Corporation. At the same time it provides outstanding opportunities for effecting major economies in our costs of doing business.

Proper recognition and administration of the Purchasing function at Worthington is essential because:

1. We cannot sell our product at a profit unless our prices are competitive, and we cannot have competitive prices if we do not obtain our materials, parts, and supplies at a cost at least as low as that obtained by our competitors.

2. We must rely on our Purchasing Departments to keep abreast of new materials, substitutes, and other developments which may contribute toward improving our products and lowering their costs.

3. We must realize a fair return on our investment, which means that we must control our investment in inventory. At the same time, it is essential to a smooth-running operation that required materials, supplies, and services are available when needed and that a reasonable margin of safety is provided.

4. Through its far-flung contacts, a Purchasing Department can affect directly a company's good will and reputation for fair dealing.

Added together, these and other equally important elements emphasize the importance of a well-organized purchasing program founded on sound, workable policies and procedures.

H. C. Ramsey
President
Worthington Corporation

PROFITABLE OPERATIONS DEPEND LARGELY ON PURCHASING



Harry B. Higgins
President
Pittsburgh Plate Glass Company

ONE of the more important aspects of the management of the Pittsburgh Plate Glass Company is the purchasing function. It is an essential link between the successful transition of research and development activities to production. In the many steps between the time raw materials enter a plant and the finished products reach the customer, the purchasing aspect is ever-present and always important. Discovering, selecting, comparing, analyzing and transporting virtually all types of materials with the two-fold aim of maintaining high quality production at reasonable cost are all tasks requiring the ultimate in special training and experience. The profitable operation of our plants is, in many ways, dependent upon the ability of our purchasing departments to keep vital materials moving to the production lines. Currently, and for the past few years, this has been a Herculean task particularly for the very highly diversified needs of our glass, paint, chemical, brush, and plastic production. Under present economic conditions and artificial shortages, the function of purchasing as a means of developing lower products costs has assumed even added stature.

PURCHASING REPORTS TO TOP MANAGEMENT



PURCHASING is one of the divisions of our business reporting to top management where, in our opinion, it belongs. Our Purchasing Department buys items running the gamut from pencils to machine tools. They have performed most capably in a seller's market, where strength and weaknesses show up quickly. We are constantly mindful of the integrity and intelligence with which our Purchasing Department operates.

P. M. Arnall
President and General Manager
The Lunkenheimer Company

PROCUREMENT IS IMPORTANT STAFF ACTIVITY



A. R. Fisher
President
Johns-Manville Corporation

OVER a period of years Johns-Manville Corporation has developed its organization on a line and staff basis. One of the important staff activities is that of procurement. During the past ten years it has been demonstrated that the procurement of materials is vital to any business.

Johns-Manville has a group of trained purchasing specialists who are not only first-rate buyers but also possess the ability to adjust to rapidly changing conditions in their particular fields. In addition to the day to day job of buying raw materials and supplies used by J-M's 20 plants and three mines and a Research Center in the U. S. and Canada, employing over 21,000 persons, the company's purchasing staff observes and reports current trends to management. This makes possible anticipatory action. Purchasing thus plays its part in helping J-M to keep its widespread plants operating efficiently and to maintain its reputation for outstanding company service.

JUDICIOUS PURCHASING IS THE FOUNDATION OF ANY BUSINESS



John M. Olin
President
Olin Industries, Inc.

THE purchase of material, equipment and supplies is one of the most important management functions of Olin Industries, Inc. Since practically all of our manufacturing operations consist of the processing of raw materials, our purchasing activities must cover the entire field. In these days of Government controls and of material shortages, these factors must be taken into full consideration. Over all, the dual yardstick of quantity and quality must be applied. It goes without saying, then, that great care must be exercised in insuring the delivery of raw materials to our various plants, in ample quantity and on time. Careful consideration must also be given to the ever-present problem of processing these materials with the greatest economy of time and effort. This involves a continuous study by our technicians of the different types of equipment available for any specific process. Once this equipment is purchased and installed, the element of supply is of great importance in its operation and maintenance. Everything considered, judicious purchasing is the foundation of any business such as ours. Its importance cannot be exaggerated.

PURCHASING MANAGERS MEMBERS OF OPERATING COUNCIL



John R. Hoover
President
B. F. Goodrich Chemical Company

IN the chemical industry a continuously controlled incoming stream of the proper raw materials at an economic cost is the life blood of successful operations.

Maintenance, improvement and expansion of plant facilities is of comparable importance to the healthy growth and competitive strength of a chemical company.

In each of these primary requirements, the wisdom, energy and ethics of sound purchasing play a vital role. B. F. Goodrich Chemical Company includes its purchasing managers as members of the Operations Council.

Foresighted, friendly relations between buyer and seller were never more important to competitive survival than in these difficult days of world economic unbalance.

PURCHASING OCCUPIES A COMMANDING POSITION



Charles A. Higgins
President
Hercules Powder Company, Inc.

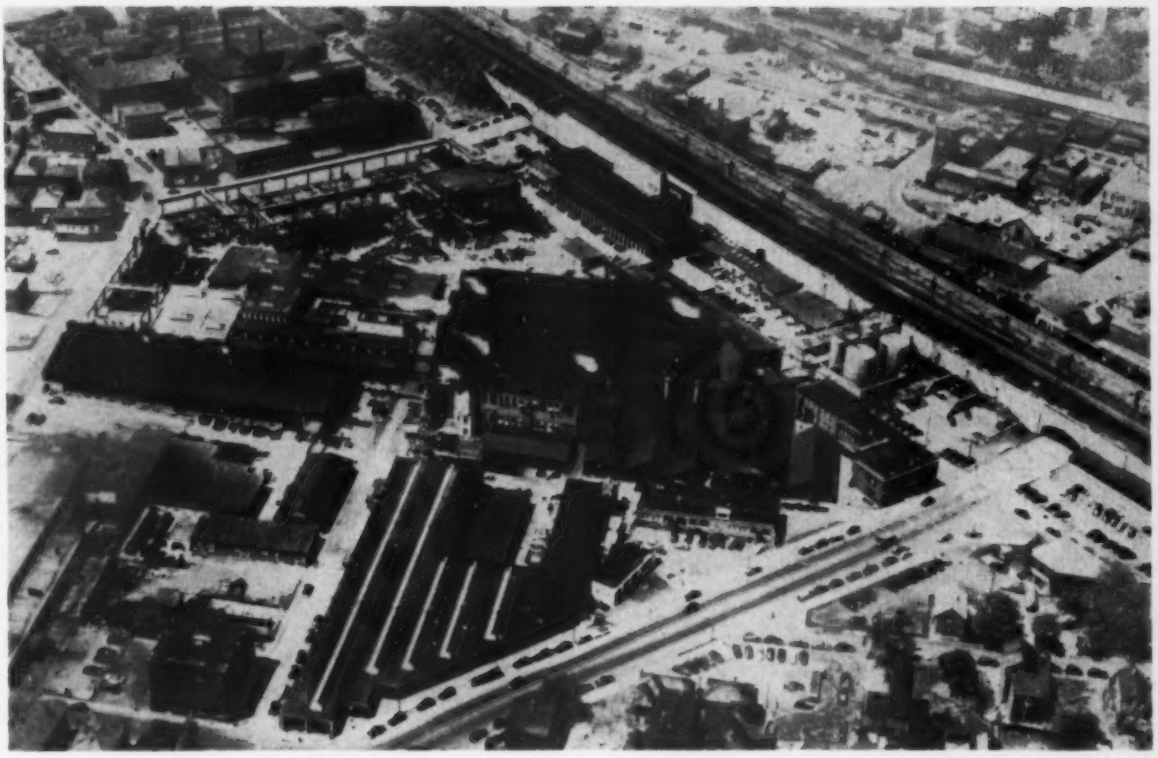
HERCULES spends about half of all its gross receipts for purchased materials and services. Any such substantial slice of our revenues deserves all the attention we can give it. In fact, we have in this company been devoting more and more time, skill and attention to the science and art of purchasing. Our greater emphasis upon purchasing reflects in part a realization of the importance of buying and all the related matters it involves—market research in materials at home and abroad, quality standards, selection of dependable sources of supply to insure continuous operations, expediting, and of course realization of full value. All of these purchasing factors must be considered together to achieve best results.

This emphasis on efficiency and on a thorough comprehension of the problems of procurement of material, equipment and services reflects the times in which we are living, a period of rapidly changing conditions. The purchasing agent with his staff of specialists certainly occupies a commanding position in the American economy.

Purchasing is not static

Every Requisition is a Challenge to Make a Saving

By Herbert Layport Manager of Purchases, Worcester Division, Wyman-Gordon Company



The Wyman-Gordon Plant at Worcester, Mass.

EVERY requisition is a challenge —a challenge to make savings, a challenge to strengthen the competitive position of one's company, and to add to company profits by practical purchasing procedures that we have broadly classified as value analysis, or purchasing analysis.

Our Purchasing Department has been quite successful in effecting substantial savings in our buying by varied activities that go beyond the commonly practiced methods of procuring maximum value for money spent.

The savings we have thus made I should say approximate four to five percent of our overall purchasing program, and aside from savings on production, operating and maintenance materials, include savings on scrap salvage, packaging and our own departmental operations.

To enable the reader to gain a clear picture of our purchasing department activities, I feel he should know something about the Wyman-Gordon Company. The Wyman-Gordon Company operates two plants, the Eastern plant at Worcester, Mass., and the Midwestern plant at Harvey, Ill. Combined they constitute the largest independent forge shop in the country.

My purchasing activities are for the Worcester plant only. Last year, plant purchases of steel, aluminum, titanium, magnesium, and various alloys were approximately $11,205,000. In addition we spent some $6,250,000 for miscellaneous materials and components for production, operating and maintenance. We carry roughly about 5200 items in our small stores department, and 4000 different items in heavy stores. In their varied sizes and shapes, types and kind, this inventory represents more than 15,000 individual items.



Herbert Layport

As men in purchasing know, getting 15,000 different items into the plant and maintaining a properly balanced inventory to insure that there will be no production delays or shut downs chargeable to lack of materials creates an interesting materials management responsibility. The shortage of any one of these items could be the one thing that would hold up a job.

Purchasing not Static

Our purchasing operations are based on the theory that purchasing is not static. The factors involved are constantly changing—materials, components, machinery, methods, and suppliers. The thing that we purchased yesterday may have been the best then available, but due to technological developments, today's market may offer something better, something less expensive, something that makes for savings not only in purchased price, but on the production lines in our plant.

There are three other important factors underlying our purchasing operations. Foremost is the fact that modern management expects that the Purchasing Department shall add to company profit through other than our much expressed formula of securing the right quantity, right quality at the right time at the right price.

The second factor is that the members of our Purchasing Department are qualified because of a well knit organization, training and experience, to look upon every requisition as a challenge for making practical savings. We are not just an "office crowd". Our buyers are completely familiar with our plant operations and equipment, and the application of the materials and components that they buy.

Even the young women in our office receive inplant training. They spend time in the stores department, the receiving department; they know how incoming materials are checked and handled, how materials are stored, the records that are kept —the information that is in them, and how stores materials are issued. They make "plant visits" to the die shop, the forge shop, and the machine shop. Thus they have become familiar with the overall picture. They have a more clear understanding of plant procedures and customs, what we make, how it is made and trade terms; they have become acquainted with the various department heads. This has greatly enhanced their interest in their work, and their efficiency.

Third, and of major importance, our buyers because of their plant "know how", have the hearty cooperation of the various department heads, and shopmen.

Our buyers are keenly aware that one of their most important duties is to query the possibility of cost saving on the requisitions that pass over their desks; this in the light of their experience and their knowledge of use and requirements, trade customs, buying quantities, supplier experience, our equipment, what can be done on it, and the use of the material ordered.

Purchasing men will readily recognize that this does not mean that we microscopically analyze every requisition. Over the years we all gain a pretty clear understanding of the regular requirements. But as previously stated, we recognize that change is ever taking place. Therefore, it is imperative that the Purchasing Department keep constant check on new technological developments, giving particular attention to the new materials, equipment and methods that may have possible application in our own operations. The new developments may be the basis of radical changes in long accepted standards and practices.

It is practical to assume that every requisition received by the Purchasing Department harbors a cost-saving challenge of one kind or another—more economical or better quality materials, substitute materials, possible change in design or parts that may effect savings, and varied other factors with which experienced buyers are well familiar. We have found in many instances, that paying a premium for quality, has been more advantageous from a company cost standpoint, than the price-saving that might have been had by buying lower cost materials, or tools, or equipment.

Incident to installation of sharpening equipment, expenditures for new power-hacksaw blades are practically nil.



WYMAN-GORDON COMPANY
WORCESTER, MASSACHUSETTS

REQUEST FOR BID FOR SCRAP MATERIALS

To:

Please quote your best price on items enumerated below:

This quotation covers period from to
All materials to be removed from our premises by the end of period designated.

Bids close at 12 o'clock noon

Samples of listed items may be seen at our Scrap Salvage Dept. For further information, please contact this office.

Kindly fill out and sign Original Request. Duplicate is for your files.

WYMAN-GORDON COMPANY

Herbert Layport
Manager of Purchases.

Our best price for your material as listed below, is as follows:

		Bid Price
1.	Carbon Steel Scrap free from all alloys segregated into two classifications: (a) Tong Holds and Bar Ends. (b) Flashings	$ _____
2.	Chrome Nickel Moly Steel Scrap with Nickel content of .40 to .70	$ _____
3.	Chrome Nickel Moly Steel Scrap with Nickel content of 3.00 to 3.50	$ _____
4.	Chrome Nickel Moly Steel Scrap with Nickel content of 1.65 to 2.00	$ _____
5.	Accumulation of Steel Chips	$ _____
6.	Mixed Stainless Steel Turnings	$ _____
7.	Prepared Mixed Iron Scrap	$ _____
8.	Accumulation of 5% Nickel Steel Scrap	$ _____
9.	Accumulation of Band Iron	$ _____
10.	Accumulation of Steel Dust	$ _____

Firm Name: _____

B-28 Signed by: _____

Date: _____

This bid form is sent to scrap dealers. Higher bids are received from dealers familiar with the company's practice of segregating scrap.

A good example of the savings made possible by purchasing department analysis lies in buying tool steel. We had the job of selling our plant men the idea that changing from 18-4-1 high speed tool steel to the M-2 type, was not only practical, but desirable from the standpoint of economy. M-2 is a 2% tungsten alloy. If it is properly heat treated it will give the same service as the 18-4-1 under most conditions. Tests demonstrated this fact to the satisfaction of our plant men, with the result that we are now saving 81¢ per pound on the purchase of tool steel.

Savings in Tool Steel

Another Purchasing Department recommendation that resulted in saving thousands of dollars involved power hack saw blades, which we use in large quantities. In 1943 we were spending $33,000 a year for new blades. At the suggestion of the Purchasing Department, a comparatively small investment was made for resharpening equipment. The resharpened blades proved highly satisfactory. The first year the equipment was put in service there was a saving of $16,000. Today our expenditure for new hack saw blades is practically nil. In fact, we have tote boxes filled with resharpened blades.

The Purchasing Department recommended the use of cemented carbide burrs instead of high speed burrs for smoothing up forgings. The use of the carbide burrs has effected a saving of at least 50% annually, for we can have the burrs resharpened time and again as long as they are not broken.

The value of watching new product announcements involving the types of materials we may be using, was recently brought to the fore by a requisition from our engineering department for production paper. We had learned through our regular checking of new products news, about a more rapid developing paper which not only made sharper prints (ammonia process reproduction), but the process materially reduced the clerical cost, for prints are completed in about one third of the time required for making prints with the paper formerly used.

Another recommendation by the Purchasing Department that has resulted in substantial annual savings, lay in the simple matter of changing suppliers of slack barrels in which we ship certain kinds of forgings. We had been paying $1.75 each for slack barrels. However, a little checking developed a new and very satisfactory supplier who furnished the barrels for $1.61. Moreover, with the cooperation of this new supplier we found that we were able to also use reconditioned laminated paper drums with steel bottoms and tops, which could be bought for $1.25 each. We used 5,575 of them last year, making a saving of over $2,750 on this one item alone.

The lesson for us here was that we should not be too prone to rest content with the service and prices of old suppliers who have been a long time in our purchase records. They too may be inclined to take a customer for granted, and forget to offer price advantages that may develop.

Following is another case in point: For the past several years we have been purchasing acid from the same source, thinking that this was a standard item and that our supplier was giving us the best price commensurate with the present market, but checking with two other local suppliers, both old line reliable houses, that we were able to reduce our cost for acid $1.06 per cwt., thus affecting a saving of several thousand dollars per year.

But the story does not end here. Our original supplier has now come back with a counter proposal which would eliminate the use of glass carboys and would supplant them with a steel container which is not only easier to handle but much safer.

We are now in the process of making an additional survey to determine whether or not it would be better to go to the new steel containers, understanding that the price of the acid will be competitive with what we are now paying, or whether to install storage tanks so that we can receive the acid in truck load shipments at a further reduction in cost. We did make such a survey a few years ago, and found we could not then justify the storage tank installation. However, we are now using acid in so much larger quan-

tities that it may warrant the capital investment at this time.

I feel that this experience is another proof that every requisition is a challenge and should not be considered a license for routine order placement.

Pallets Prove Profitable

The Purchasing Department also investigated the use of pallets for making truck shipments. We found that we could put the same load on a pallet that cost about $1.40, that we formerly put in four barrels. Now by the use of pallets we are saving the cost of three barrels at $1.61 each plus the difference of 21¢ between the cost per barrel and the pallet cost. We have given study to the use of expendable pallets for this shipping, but find that they would be more costly. Furthermore, we have found that the laminated drums are more satisfactory for shipping small aluminum parts because of the smooth sides of the drums—and the drums are expendable.

Moreover, by the use of pallets we have reduced our handling costs of these materials at least 60%. On one job which formerly took four to six men several hours to load a car of crank shafts, by the use of fork trucks which were purchased on recommendation of the purchasing department, we are able to load a car of palletized crank shafts in about an hour and a half.

Incidentally, we noticed that the hardwood pallets were usually a total loss when damaged in transit, due to the fact that it is almost impossible to pull the nails and satisfactorily repair the pallet. We overcame this problem and loss by substituting softwood pallets which are more easily repaired.

We have learned that scrap instead of being a problem, can be quite profitable, if properly handled. During 1951 the Purchasing Department sold 24,000,000 pounds of scrap from our production operations, for $652,000. This sale represented a profit of more than $150,000 over previous scrap sales, for the very simple reason that we now carefully segregate our scrap by kinds of metal. Talking with various purchasing agents, I have gained the impression that some of them are losing plenty of money on their scrap sales, because they do not have scrap segregated, and are prone to accept whatever price a scrap dealer may offer, just to get rid of it.

We should not overlook that scrap is a valuable by-product, especially today. We send a bid form to scrap buyers for the scrap we expect to produce. Buyers who are familiar with our segregation methods usually present substantial bids. For instance, high and low bids from several scrap dealers on one class of scrap recently ranged from $27.09 to a high of $34.24, and on another class the bids ranged from $20 to $36.10 a ton. The higher bids were from the scrap dealers familiar with our practice of careful scrap segregation.

Due to scrap segregation, scrap sales income of $652,000 in 1951, represented an increase of more than $150,000 over income previously realized.



Another scrap disposal item, that I am sure will be of interest to many purchasing agents, is the conversion of hammer scale (iron oxide), and which with us was formerly a waste material, into cold cash. Where we previously had the expense of trucking the material to a dump, we are now getting $13.75 a ton for it.

The principle method we follow in segregating scrap, is to have it placed directly into properly labeled boxes on the job. If we are working on a stainless steel job, the scrap from the job goes into a box labeled stainless steel. I should say that there is very little extra expense involved, for the scrap has to be moved anyway, and our fork trucks provide an economical means of handling the filled boxes. More to the point, however, is the fact that our scrap crew, under this arrangement, has no difficulty in identifying the different kinds of scrap. As is to be expected these men have become quite adept in identifying scrap by weight and appearance.

Our scrap crew consists of a crane operator and two men on the ground, one of whom is responsible for keeping the scrap records. Obviously, this crew would be necessary regardless of how the scrap is sold.

This salvage crew has also done a bang-up job in the salvage of steel drums, which, as purchasing agents will agree, often seem to "vanish in thin air." A careful check is kept on drums to see that those on which we have to pay a deposit are returned to the supplier. This deposit ranges from $4.00 to $10. per drum. The salvage crew has the responsibility of seeing that the deposit drums are separated from those which are disposable, and that they are returned to the right supplier. Reports are sent to the Purchasing Department at stated intervals showing the disposal of the drums so that Purchasing can arrange for deposit credits. The same plan applies to the handling of glass carboys, the deposit on which is usually $10. each. We handle several hundred carboys weekly. Our check and return of deposit drums and carboys is paying handsome dividends.

Quantity Buying

The alert purchasing department is conscious of many ways to effect substantial savings. However, I feel that some overlook the opportunity to make substantial savings offered by quantity buying, espe-

1. Modern management expects the Purchasing Department to add to company profit through other than the much expressed formula of securing the right quality, right quantity, at the right time and at the right price.

2. The members of our Purchasing Department are qualified because of a well knit organization, training and experience, to look upon every requisition as a challenge for making practical savings.

3. Our buyers, because of their plant "know how", have the hearty cooperation of the various department heads and shopmen.

4. We should not be blind to the money-saving opportunities offered by changing suppliers—trying new pastures.

5. Our own departments too often are a good place to effect real economies without impairing efficiency. I feel that we have saved considerable purchasing department cost by the mere practice of keeping our records at a minimum.

6. We have learned that scrap instead of being a problem, can be quite profitable, if properly handled. During 1951 the Purchasing Department sold 24,000,000 pounds of scrap from our production operations, for $652,000. This sale represented a profit of more than $150,000 over previous scrap sales, for the simple reason that we now carefully segregate our scrap by kinds of metal. Scrap buyers who are familiar with our segregation methods usually present substantial bids.

cially quantity buying of small reused items. We receive many requisitions calling for say a hundred of this or that. However, by ordering an additional hundred or even more, depending on the material or part and frequency of use, we have made savings of 25% and more. This saving and the steady turnover of these items coupled with the fact that the added quantity entails little or no additional warehouse cost (regardless of what is written in the school books), usually returns a mighty big dividend on the investment in the extra hundred pieces.

Another place where we have been able to save considerable money lies in ordering materials in standard packages, and combining orders to make with substantial discounts for standard packages or combinations of standard packaging.

I previously mentioned that I feel purchasing departments have a tendency to stick too close to what we consider "old reliable" suppliers. We should not be blind to the money-saving opportunities offered by changing suppliers—trying new pastures. We are not only making money-saving contacts with new suppliers for various materials but it is interesting to know that in spite of the current shortage and long lead time required for certain sizes of bolts and nuts, we have been able to get remarkably quick delivery and savings ranging from 6% to 12% by checking on the ability of local outlets to supply items of this type. Substantial savings are being made on many other production and maintenance materials by assiduously cultivating the sources of supply near at home. It is the "acre of diamonds" story all over again.

Another place for saving lies in printed matter. Here a little care makes for goodly savings. We have been making particularly interesting savings in the purchase of forms. At present we are using some 275 forms throughout our Worcester plant. Most of these are purchased locally by competitive bidding, and we are saving up to 25% on former costs. Our experience in the matter of having printers hold the metal for forms that we have ordered, may differ from that of many purchasing agents. Generally we have found it possible to make savings by getting new bids rather than have a printer make a re-run. This may be due to the fact that standing metal in a form may get badly "pied" between runs, and of course the printer is going to make full charge for resetting and remake of the form.

Purchasing Department Economics

Our own departments too are often a good place to effect real economies without impairing efficiency. I feel that we have saved considerable purchasing department cost by the mere practice of keeping our records at a minimum. For instance, we seldom have occasion to refer to past cost figures. If such data should be needed, our files contain all the information, and furthermore our accounting department is able to quickly develop all the past cost data that management may want. In other words, I do not feel it necessary that the purchasing department be loaded with the expense of maintaining duplicate records of cost data that is in the cost department and accounting department files. Our small stores and major stores maintain complete records of material, inventory, receipts and disbursement. All of this information is immediately available. Why should we duplicate such records? I gather from talks with purchasing men that some of them are maintaining unnecessary expensive records. In my thinking, such record keeping is best characterized as purchasing department boon-doggling.

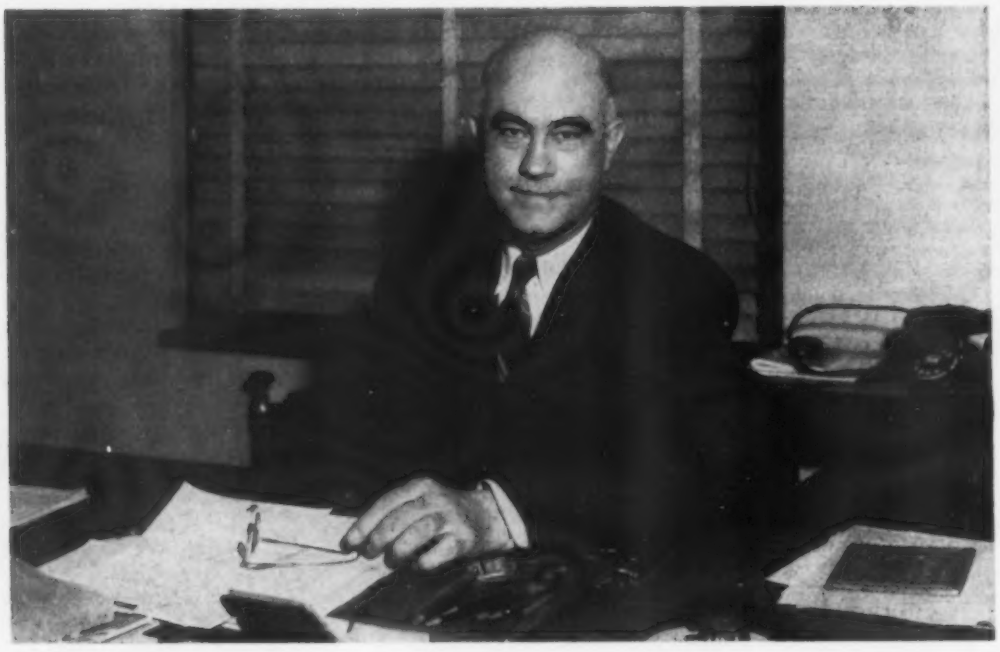
However, we believe and practice obtaining and placing on the order, the price, discount and proposed delivery, and the f.o.b. point on every thing possible. I know there is a great deal of opposition among purchasing agents concerning this practice, it being their belief that it entails too much work. However, in my book the placement of orders without pricing them is "order placing" and not "purchasing."

In conclusion, I should like to repeat that Purchasing is not a static field. It is a dynamic field, one that offers many opportunities to secure greater value for the dollars we spend. Our management expects us to capitalize upon such opportunities.

A Challenge and an Opportunity

Cash In On Management Recognition

George A. Renard, Secretary-Treasurer, National Association of Purchasing Agents



THE headlines feature Uncle Sam's procurement problems and the possibilities for increasing the mileage of our tax dollars.

The annual purchasing for profit issue of the magazine PURCHASING quotes the best known and most representative business officials and executives, with factual and realistic statements of their recognition of the importance of purchasing and the responsibility of purchasing executives as members of the management team.

Of course, there are exceptions, but generally speaking we, in purchasing, can no longer use, as an alibi or excuse, a defensive attitude based on the inference that the importance of purchasing is not adequately recognized by management.

The successful purchasing executive these days aggressively meets the responsibilities delegated to his department and organization by management, and meets the challenge to increase the opportunities to help solve both the policy and operating problems of the company.

One of the major advancements in management has been the recognition that purchase of materials and control of inventories are very essential cost and profit factors in both manufacturing and merchandising. That is not a theory because it is easily proven by arithmetic.

It has also been said that purchasing is actually the spark plug of our enterprise system, because trained executives compare and evaluate the products and services of competitors, creating the urge to improve products and services and values.

Certainly no group of management experts have better knowledge and experience than purchasing executives, to advise and assist Uncle Sam's procurement officers in the development of the defense program by the most efficient and economical methods and procedures.

We must realize that the emergency defense program, from the government standpoint, is almost 100% purchasing, because the government is not a factor in production. If we wish to retain a free competitive profit economy, we should help the Armed Services establish sound purchasing policies and procedures, which I believe they are trying to do under many handicaps.

So, the real problem of the experienced and informed purchasing executive is to meet his responsibilities, and accept and cash in on the opportunities to meet this continually increasing recognition by management.

Defense Program Places More Dependency on Skill of Industrial Purchasing Men



THEY ARE TO BE CONGRATULATED

AS THE agency of the government whose principal function it is to look out for the health and welfare of the nation's business community, the Department of Commerce has long been aware of the key place of the purchasing agent in the economic scheme of things.

We not only realize the importance of the function of purchasing to the whole economy but we are well acquainted with the highly professional group of men and women who are engaged in buying the raw materials which go into the products which give our people the highest standard of living in the world.

During the present period of defense mobilization, the country has been even more dependent upon the skill of the purchasing agent. I know that as a group they have cooperated with their government to the fullest in reducing needless scare buying and they have been most cooperative in other important phases of the materials distribution programs. They are to be congratulated.

PURCHASING Magazine has on several occasions referred editorially to the Department of Commerce as the Purchasing Agent's department of the government. While in reality we seek to serve all segments of industry and commerce, we of course feel it is a distinction to be singled out as representing so important a field of American business endeavor.

Charles Sawyer
Secretary of Commerce, Washington, D. C.



PURCHASING MEN DESERVE CREDIT FOR PART IN MAKING NATION STRONG

IT IS still too early to sit back and compliment ourselves on a job well done, but it is certain that we are well on our way toward achieving our industrial mobilization.

This accomplishment is in no small measure due to the efforts of the purchasing agents in industry who have worked with the National Production Authority to make the controlled materials plan operate.

CMP has been successful. It had its rough edges, as expected in the early stages, but any control system would have been difficult to put into operation, considering the diversity and complexity of industry.

It is clear to me that if industry did not have a body of men and women who are highly skilled in the techniques of procurement that it would be infinitely more difficult to organize any kind of materials control system. The great contribution of the purchasing agent has been the application of skill and professional integrity to make possible our building toward an adequate national defense. I believe that the purchasing executive well deserves credit for the part he is playing in making this nation strong.

Henry H. Fowler
Administrator,
National Production Authority, Washington, D. C.

Cost Reductions Originated By Purchasing Agents

Getting the Most for Each Dollar Spent

Rulon Nagely, Director of Materials, North American Aviation, Inc., Los Angeles, Calif.



Rulon Nagely

THE procurement of materials and services for the airframe industry is a vitally important area for economy measures and one in which the contractor must, in effect, take the role of the procuring service in encouraging low cost operations by thousands of large and small companies in scores of industries. The job can be described as getting the most material for each dollar spent.

Getting the most for the money in buying the thousands of items required for airframe manufacture is often difficult, particularly in periods of shortages, restrictive regulations, and rising prices. The technique used by North American Aviation, Inc. includes buying in maximum quantities, favoring low cost producers, encouraging competition, price redetermination buying, controlled time buying, and helping suppliers reduce their costs. Several of these techniques are described below with specific examples where applicable:

By combining orders for like materials through an accumulation recap system and through coordination between our principal plants, the company achieves savings usually available when purchases are made in large quantities. On 14 purchase orders placed for requirements of two of our military contracts, an estimated $245,000 was saved through combining the requirements of our Los Angeles and Columbus plants. Less dramatic savings are realized daily through quantity discounts obtained by individual plants.

Buying in maximum quantities

Because our company does not have cost plus a fixed fee production type contracts, it is able to maintain a pooled inventory. By purchasing for overall contract inventory rather than for individual contract requirements, it is possible to achieve larger quantities in individual purchases. It is estimated that pooled inventories enable the company to save $150,000 annually on tool bushings alone.

As another example, an estimated $27,000 was saved in 1951 by quantity discounts on rivets purchased from two companies, one of which gives its highest discounts on quantities of over 50,000 and the other on quantities of 1,000,000 per purchase order. In both instances, the quantity buying was made possible by pooled inventories.

Favoring low cost producers

It is a policy of North American Aviation to encourage low cost producers to expand their volume by giving them preference over high cost producers in the placement of orders. In addition to the benefit derived from the lower direct cost of these efficient producers, we can ultimately get the benefit of reduced burden as the volume is increased. In one case of this kind, the orders for a certain type of part were transferred from a firm whose price was $600 per ship-set to a more efficient firm whose price is now down to $240 per ship-set.

Encouraging competition

One of the most effective techniques has been that of establishing or encouraging competition where little or none existed. When a new product required in an airplane is available only from one source, other manufacturers have been encouraged to go into production, resulting in competition and lower prices. In one such instance, a saving of $240,000 was realized on 1950 and 1951 purchases of an item required in all jet aircraft. In another instance, $115,000 has been saved in cable purchases by the development of a secondary source.

Another phase of this activity has involved the preparation of specifications for items specified for one source procurement by our Engineering Department. Other sources can frequently be developed with the aid of specified requirements. One example of this involves a special type of wire believed to be the only type meeting certain requirements. After detailed specifications were prepared and competitive types tested to these specifications in our research laboratory, it was found that more than one type was suitable. The resulting saving over the past two years has been estimated at over $900,000.

In another instance, a large manufacturer of standard items virtually dominating its field was encouraged to reduce its prices to the extent that $44,000 was saved by the company in 1951. The pressure con-

sisted of approval of a secondary source, which, although not able to produce in large quantity, caused the large manufacturer to reconsider its price policy.

Helping suppliers reduce their costs

Direct efforts are frequently made to assist suppliers in reducing their costs. These efforts may consist of assistance in establishing production control systems, advising them on improved methods or equipment, advice or help in material procurement. One typical example was a small Los Angeles company which possessed a great deal of technical know-how and production skill, but got into trouble when volume of orders forced it to grow beyond the size capable of one-man mangement. Our personnel helped the management establish an adequate production control system, procedural refinements, and an adequate parts cost system. Today rejections are running less than one percent, prices are down, and deliveries on schedule.

Cost-Cutting Suggestions by Purchasing

George Stone, Director of Purchasing, Davis Aircraft Engineering, Inc., Lowell, Mass.

1. CHECKING through and comparing prices charged by outside vendors on finishing and deburring work, the cost was higher per unit than the cost sheet would allow. Purchasing recommended that a hydra-honing wet abrasive machine be purchased in order to deburr and finish large size parts, showing that time could be cut down eight to ten minutes per unit. Top management followed Purchasing's recommendation. Estimated savings were approximately 70 per cent.
2. Steel forgings were being used to fabricate certain machine parts. The additional cost of machining plus added cost in the plating operation brought these parts above allowances provided for in our cost sheet. Purchasing suggested that a wax casting method be used and though it increased the cost per casting by six cents over the steel forging, it eliminated practically all the machining. It also cut down the cost of plating by providing a better surface with a saving of approximately 50 per cent, and a total saving per unit of 25 per cent.
3. Cost of rejections were decreased by having vendors deliver complete parts that called for finishing processes such as heat treating, etc., as part of their production run. Under former method we did all finishing processes after receipt of material. By adopting new procedure suggested by Purchasing spoilage was charged directly back to vendors instead of being absorbed by us, plus the saving in cost of transportation, handling and double inspection.
4. By advance planning of jobs predicated on delivery of raw material and lead time needed for sending fabricated parts to our subcontracting department, Purchasing collaborated with production, helping them to arrange a more effective schedule in the shop and also to increase or decrease personnel by transfers to departments as needed. This resulted in a saving by allowing us to stockpile material, cutting down on cost of anodizing, plating, heat treating, etc., by producing maximum runs at more advantageous prices, and eliminating minimum charges.



George Stone

Savings in Steel Buying

C. B. Johnson, Purchasing Agent, Chain Belt Company of Milwaukee

MANY of the savings we have made have to deal with steel specifications, as that is the major item we purchase.

Most buyers are familiar with the extra for plates 48″ wide, but since all of our specifications were set up on that basis prior to issuance of the December 1949 Plate Extras, it was necessary for us to change our specifications to 48-1/16″ or 48-1/8″ widths to avoid paying the extra for 48″ width, which in no way affected our use of these plates, nor did it increase our scrap loss.

We also had several specifications calling for bars 10′ 0″ long, which we changed to 10′ ½″ long. We have made no estimate of the savings due to these changes, but we know it is considerable.

In one instance, we were purchasing 16 gauge x 48″ wide x 120″ floor plates and found that by changing the size to 16 gauge x 40″ x 8′ 2″ lengths, we would eliminate a considerable amount of scrap. The savings on this change amounted to approximately $4,000.00 per year.

We purchase quite a few welded rings. Following a study of quota-

tions our buyer discussed the matter with our engineering and shop people and then made a call at the supplier's plant to explain exactly how we use the rings and what was required. This could not be done satisfactorily by sending blueprints. The result of this trip was a saving of approximately $5,000 per year.

One Purchasing Department Recommendation Saved $210,000

W. R. Murray, General Purchasing Agent, Bigelow-Sanford Carpet Company, Inc., Thompsonville, Conn.



Wm. R. Murray

1. IN 1950 the Purchasing Department made a recommendation at a staff meeting, at which all of our divisions were represented, to use 1100 denier, high tenacity rayon yarn in place of cotton yarn which has been used as a warp in weaving carpet since time immemorial. The reason for the recommendation was economy. After trials were made and many technical problems solved by our research and manufacturing departments, the change was made in early 1951. The Manufacturing Division acknowledges officially that in 1951 alone, which was not a good year, the substitution has saved $210,000.

2. Through the collaboration and investigation of the Purchasing Department with the Cost Engineering Department's packaging specialist, a change in the method of handling rug wrapping materials has been established which will result in a saving per year of approximately $7,000 in cost. An additional saving in inventory will result through the fact that formerly individual wrappers in many sizes were stored as compared with the new method of storing the wrappers in rolls and cutting them as needed. The inventory reduction is estimated at approximately $44,000.

3. In 1949 a total of 875 lug straps were drawn from Stores, of a type costing approximately $3.00 each. The Purchasing Department felt this was a high rate of destruction and eventually came up with a different type which cost approximately $1.50 each. In 1951 only 144 straps were drawn from Stores at a total cost of $216, or a net saving in cost on this particular item of $2,409. In addition to the actual cost of this item there is a considerable saving in down time required to replace broken straps, which we have not estimated.

4. Picker sticks have always been made of hickory, and as is the case with many operating supplies, it is difficult to persuade manufacturing people to change. It was felt the use is high and investigation by the Purchasing Department, plus the necessary persuasion, developed through trial that a laminated stick was superior in length of life. In this instance a hickory stick costs approximately 80¢, whereas a laminated stick costs $6.25, requiring a life expectancy of at least 800%. Sufficient trials have demonstrated that greater life expectancy can reasonably be anticipated but factual figures for comparison cannot be produced until all hickory sticks have been completely replaced with the laminated sticks. Here again the reduction in down time representing loss in production will far outweigh the individual cost or saving on the sticks.

A Few Instances of Savings by Purchasing

J. L. Hyatt, Secretary and Director of Purchases, The Falls Engineering & Machine Co., Cuyahoga Falls, Ohio

FOLLOWING are a few instances of the numerous ways the Purchasing Department has been able to contribute to savings in our own company:

Approximately once a year the flues on our gas unit space heaters had to be replaced because of the erosion, caused mostly by gas fumes and the elements. It was suggested by the Purchasing Department that these be replaced with stainless steel. Same was installed three years ago and show no signs of deterioration to date. The extra cost of the material used was very small in comparison to the replacement cost, since labor was the large part of the entire job. Savings have amounted to $300.00 each year since installed.

Our plant is located in a suburban city, adjacent to Akron. Numerous times it was necessary to send one of our trucks to the rubber plants to pick up a mold for rush repairs. It was suggested by the Purchasing Department that we have a mobile phone installed, which has saved many a round trip for a truck plus the added service given our customers. It has also saved 'down time' for our own machines when it has been necessary to pick up repair parts. We have averaged a savings of fifteen trips a month at $15.00 a trip. The cost of $30.00 per month for the equipment and



J. L. Hyatt

service makes a net savings of $195.00 per month plus the intangible good will of our customers.

Needing a tram rail for one department of our shop, quotations for material and erection were received from three firms. All prices quoted seemed too high and quoted dates for completion were too far distant. We were able to purchase the required component parts which our maintenance crew assembled and erected. Costs were kept including labor, and a savings of $1500.00 was realized.

It was noted by the Purchasing Department that gussetts for our patented collapsing V belt curing molds were being sawed in our plant on a metal cutting band saw. This steel is 2" thick and it was a slow process to saw them out. We suggested buying them torch cut from a supplier with pantograph equipment. Savings are averaging $2000.00 per year.

Value Analysis Program Basis of Substantial Savings

E. H. Weaver, Manager of Purchases, Union Oil Company of California, Los Angeles

BUYERS of Union Oil Company of California have given active support to a "Value Analysis" program covering diverse items purchased for company operations. Savings have ranged from a few hundred dollars to many thousand dollars per year.

We buy a large number of corrugated fiber boxes for storage of credit card receipts. By having one concern supply the boxes and another install the grommets and tie strings we are able to make an annual saving of $1,540.00 per year over previous costs.

Purchases of monoethanolamine were made in drums because of lack of storage facilities at the using point. Investigation of tank car deliveries brought out the fact that one year's savings in cost of material alone would pay for bulk handling facilities without considering the savings effected in eliminating barrel handling. When this installation is completed we expect savings of at least $4,000.00 per year in this item.

Our Research Department formerly used a very heavy and cumbersome sieve shaker. On the basis of investigations made by Purchasing they are changing over to a light weight shaker with an annual saving of $300.00 a year.

An investigation of one-quart motor oil can specifications developed the fact that an aluminum undercoat under the lithography served no useful purpose. Direct saving on this item amounts to $15,000.00 annually.

Our "Stop Your Motor—No Smoking" sign was always ordered as a double faced sign because at some points of installation it was visible from both sides. On Purchasing's recommendation we now use a single face or double face sign as required, at an annual saving of $1,000.00.

By using an extra carbon with plain bond paper in place of #2 sulphite translucent bond for our tank truck loading tickets, Purchasing decreased lead time from 120 days to 60 days and achieved a more readable copy at a saving of $200.00 per year.



E. H. Weaver

On the basis of plant tests Purchasing showed that carbon tetrachloride-technical grade was satisfactory for our use. Savings over using C.P. grade amounted to $1,000.00 per year.

Savings Opportunities Knock at P. D. Door

J. A. Mogle, Director of Purchases, National Standard Company, Niles, Mich.

MANY opportunities have come to our Purchasing Department to gain substantial savings for the company, and some of these which come to mind are the following:

In the annealing of stainless steel we use ammonia to generate a hydrogen atmosphere and formerly purchased it in standard ammonia cylinders. By locating a source which could deliver to a large storage tank by truck we were able to inaugurate a saving of 41% on the pound price of the ammonia. The cost of the storage tank was repaid in less than five months, and we are now enjoying an annual savings of approximately $3600. per year.

In cooperation with our Engineering Department we were able to locate a supplier who could furnish us with rubber covered equipment to meet the requirements of our specialized plating lines and replacing old style equipment which had to be replaced at least every two years. The result has been a saving in cost of equipment of approximately $7500. per year, plus elimination of expense down time on the equipment.

We recommended a change from a "special" drawing compound to the pure basic component of this expensive material. Borax, which we substituted, could be bought for ⅓ the price we are paying, with a net saving of $3000 per year.

There, of course, have been many other instances of savings by the Purchasing Department including one which eventually led to the establishment of a new branch plant.

Purchasing Activities Add Directly to Profit

E. F. Andrews, Purchasing Agent, Pitman-Moore Company, Indianapolis



E. F. Andrews

TODAY "Purchasing for Profit" takes on even more important aspects and steps into the limelight more than ever before. Many companies are experiencing the old problem of increased gross dollar volume sales but decreased profit after taxes. Who else besides the purchasing department can more directly effect profit?

Market analysis on an intelligent and well planned basis can bring much profit to the purchasing agent. Recently, it came to my attention that we were spending a considerable amount of money for laboratory animals. Buying these animals from various raisers over the country we were paying as high as $8.00 and $9.00 per animal. Finally, I was able to locate one raiser who was interested enough to act as our broker, and negotiated a contract with him at a firm price with a national average, taking into effect seasonal conditions, and was able to save $3.50 per animal. This resulted in a substantial savings because we purchase approximately 250 of these animals per week.

Due to the high cost of labor at one of our plants several miles outside of Indianapolis, we found that our finishing costs on certain biological products were going higher and higher. In cooperation with the engineering department the purchasing department was able to design special equipment to handle a wide range of package sizes at high speeds. While the initial cost was something like $18,000, we were able to relieve this department of about seven of the people formerly employed there which eased the problem of getting people to work at this distant plant, and the equipment paid for itself in the first six months of operation. From then on it's gravy.

The above shows that usually the purchasing department can cooperate with the engineering department and the vendor in working out specialized equipment to fit almost any need and thus reduce operating costs, labor difficulties, and lead to much faster, efficient production. This is purchasing for profit.

Another practical purchasing for profit method is for the purchasing agent to carefully watch his purchases and group or pool quantities of like items on a contract basis. We have several items of which we buy 500 or 700 pounds a year. By pooling these like items together, we can sign a contract for 5000 pounds and get the 5000 pound price, saving approximately 90% a pound. Here, roughly, is a $5,000.00 annual profit due to the fact that the purchasing agent took the time and trouble to work out a schedule and pool quantities on a withdrawal contract basis.

Savings Under Escalator Formula

By Geo. H. Cole, Purchasing Agent, Alabama Power Company, Birmingham, Ala.

SOMETIMES things that appear of little importance at the time of placement of orders loom most important before purchase contracts are completed. There are striking examples of this in the analyses and determination of terms of payment offered to purchasers of heavy equipment for long delivery by equipment manufacturers, particularly during periods that alternate elections of applicable terms were available.

Back in 1945 certain electrical equipment manufacturers were offering optional price adjustment provisions on major equipment which made available conditions on the basis of Department of Labor indices for wholesale commodity prices and indices covering labor rate changes or if the customer preferred he could accept more simple conditions providing for adjustment of prices to prices in effect as of date of shipment and usually with a percentage limit on change. The index formula at the time provided for 40% of the purchase price to be subject to adjustment on the basis of labor index changes, 30% subject to adjustment on the basis of prescribed wholesale index changes and 30% of the purchasing price not being subject to adjustment, the formula later being changed to 55%, 30% and 15% and later the option for such terms was withdrawn.

Having received advance notice of price increases on various types of equipment, the Purchasing Department advised commitments prior to the effectiveness of the in-

(*Please turn to page* 496)



George H. Cole

Purchasing's Goal is Profit



How Purchasing Can Lower Costs

MANAGEMENT IS CONSTANTLY searching for new materials and methods to improve quality or to lower costs. Competent purchasing personnel can help immeasurably to attain this goal by—

Their knowledge of materials, market prices, and negotiating practices. Developing new sources of supply, and the use of substitute materials. Also, by assisting in the work of standardization of materials purchased, and through proper inventory controls.

Present day conditions are causing new and urgent demands to be made on Purchasing Agents. This larger responsibility gives them greater opportunities than ever before to make significant contributions to their companies' earnings.

C. L. Sheldon
Manager Purchasing
Hood Rubber Co., Watertown, Mass.
Past President of N.A.P.A.



Know-How, Know-Why, Know-What, Know-Where, Know-When

FOR MANY YEARS the whole program of the National Association of Purchasing Agents has been aimed at providing its members with the "know-how" with which to do a better job. Purchasing for Profit requires more than functional know-how. In addition to know-how, purchasing men must now possess "know-why", "know-what", "know-where" and "know-when".

Many of the larger companies are doing a good job on all of the above counts. In view of the fact that good purchasing performance is equally important in the medium size and smaller companies, the NAPA Committee on Education will devote much of its future efforts towards those groups. It will try to furnish all of the "knows" to those who will make use of them. The end results are far reaching, especially when we consider the interdependency of our thousands of industrial plants, as suppliers to one another.

Cost Reduction, Standardization, Value Analysis and Inventory Control are essential buy.ng factors in all organizations, and can be as effectively used by the smaller organizations as in large organizations to increase the value of the purchasing dollar. That is what management expects of the Purchasing Department.

Clyde H. Porter
P.A., Alabama By-Products Corporation,
Birmingham, Ala.
Vice President, District No. 7, N.A.P.A.



Purchasing Men Have a Selling Job!

THE SCOPE OF the purchasing function is determined by the size and type of the organization, its growth and development and its *management policies and methods.*

This is important, think about it. It affects us as Purchasing Agents directly. Purchasing can be limited to the mechanics of buying known or specified needs, or it can include the whole sphere from specification of the need to its satisfaction.

Management is anxious that we "Purchase for Profit", that we procure maximum value for every dollar spent. Therefore it is receptive to new ideas, new methods and new policies. It is up to us to convince management that we have the ability and capacity to do a job which will produce more for the company dollar.

B. Knox Sprung
P.A., Manitoba Power Com., Winnipeg, Can.
Vice President, District No. 5, N.A.P.A.



Profit Is Our Business

A WELL-DEFINED Profit Objective program is a prime requisite for all purchasing activities and a department without such a program is not assuming its full responsibility to management. Never before have there been greater opportunities for purchasing to reflect its accomplishments in the profit statement. Buying at the lowest initial price is not the proper definition of intelligent purchasing. The policy in U. S. Steel is to buy goods and services at the lowest ultimate cost, taking all factors into consideration.

Our expenditures for purchased goods and services are in excess of a billion dollars annually and represent approximately 38¢ of each dollar of revenue. This is a substantial cut out of our sales dollar and the opportunities for purchasing to contribute to cost reductions are obvious. To capitalize on these opportunities, purchasing functions must be administered with utmost discretion and the highest degree of wisdom. This can be accomplished only by a carefully selected, well-trained and competent organization, properly coordinated, and comprising people who possess creative ingenuity and who are commercial experts and specialists in their particular assignments.

C. A. Ilgenfritz
Vice President—Purchases
United States Steel Company, Pittsburgh



What Management Expects From Purchasing

THE PURCHASE-FOR-PROFIT issue of PURCHASING is a record of accomplishments of Purchasing Departments and their contribution to their companies' profits. An annual review of this type serves to highlight the potential possibilities open to Purchasing Departments and arouse those companies to action who are not presently devoting sufficient time and effort to this phase of Purchasing.

The Purchase for Profit-minded purchasing executive is not resting on these past recorded deeds. He knows this assignment is a year round proposition. He must work with the tools at his command. One tool is "know-how". It is very easy for us to explain the success of another person by stating he has "know-how". We are prone to feel that "know-how" is some vague, strange or perhaps miraculous power with which one person is endowed. If we really look at the word and break it down into its two components, rather than dealing with it in the abstract, we quickly find that it becomes "know" and "how". That is the basis for the existence of a Purchasing Department, to have people who know the basic fundamental facts of Purchasing and the commodities which they purchase and then have that ability to answer the "how". That is what Management expects from Purchasing.

S. W. Mac Kenzie
Director of Purchases
United States Rubber Company, New York



Purchasing Agent's Value Measured by Final Costs

IT IS THE DUTY of every purchasing agent to secure material and supplies to carry on a business, not only at the best prices available, but also consideration must be given to the quality of the material and supplies, time of delivery and other services that the supplier can render in order to increase the efficiency of the plant operation, thereby reducing production cost.

The Purchasing Agent of today carries a bigger load and more responsibility, and likewise a greater opportunity to prove his value to his company than ever before. As a salesman's value to his company is measured by the volume of orders he turns in to the management, a Purchasing Agent's value is measured by the final cost of materials and supplies. These factors constantly demand our intelligent thinking and planning as purchasing executives, and they are always a challenge to our performance. We as Purchasing Agents stand ready at all times to accent this challenge.

T. S. Paulsen
Vice President of Purchases
Russell-Miller Milling Co., Minneapolis, Minn.
Vice President, District No. 3, N.A.P.A.



Each Dollar Must Bring Maximum Return

IT IS NO LONGER necessary for the purchasing agent to impress upon his management the importance of the procurement function. Modern management realizes that raw material is the life blood of its business. An enterprise must have the right combination of quality, price and timeliness with respect to its raw material if it is to survive in our competitive system.

This change in management thinking has resulted in a change in accent insofar as the responsibility of the purchasing agent is concerned. The monkey is now on the back of purchasing. We must prove in practice what we have been preaching.

Turning in a routine job will no longer be sufficient. We must be sure that each dollar we spend brings the best possible return. We can set new goals for ourselves. The creation of added value through proper analysis of each requirement should become a habit.

H. F. Jones
Asst. Purchasing Agent Atomic Construction
E. I. du Pont de Nemours, Inc.
Past President, N.A.P.A.



Standardization, Inventory—Source of Savings

PURCHASING IS OF prime importance in both private and governmental business operations. It has many exacting duties which do not always involve the problem of obtaining the lowest prices. In fact, low price is not necessarily the essence of good purchasing. Efficient purchasing involves such factors as the stability of the vendor and his financial status, adherence to specifications and quality standards, and dependable service, and our own knowledge about the products, equipment and services that we may be buying.

Standardization, where practical, will bring about savings, and stimulate competition. Inventory control is of vital importance. Many dollars can be saved by careful supervision of stocks, looking to practical turnover and minimum inventory investment.

Purchasing will be accorded due recognition if it fulfills the responsibilities of the purchasing function as set forth in the Principles and Standards of Purchasing Practice which have been sanctioned by our National Association.

L. A. Fagan
P.A., Conn. State Dept. of Health, Hartford.
Vice President, Dist. No. 9, N.A.P.A.



Purchasing Personnel Trained to Buy Value

THE PURCHASING AGENT, as a member of the top management team, is expected to do his part to increase the profits of his company. This can be done by intelligent and careful buying and through the efficient operation of his department. To this end, the personnel of my department are so trained, and the fact kept constantly before them, that they are to be on the alert for new materials, better methods and dependable sources of supply. All of the key men have been given intensive training in modern management by a well-known New York firm of management consultants. Our personnel know the company's policies, objectives and methods and feel free to contribute their ideas to better purchasing. They are trained to buy value, realizing that price is but a factor of value.

Cooperation with the factory production, engineering and design groups is of utmost importance. In their dealings with these groups, the purchasing department personnel can save the company money by keeping them informed of new products and changes in market conditions, and anticipating the needs of production. Again, the purchasing department must be alert to the best utilization of raw stock inventory.

George L. Brown
P. A., F. C. Huyck & Sons, Rensselaer, N. Y.
Vice President, District No. 8, N.A.P.A.

Standardization Simplifies Procurement and Builds Healthy Profits

By Thomas D. Jolly, Vice President, Aluminum Company of America, Director, American Standards Association

NO group in industry uses standards more effectively to coordinate and simplify its work than buyers and purchasing agents. Yet relatively few people realize how much we depend upon standards in procurement.

This is not strange, for seldom have we occasion to explain why it is essential to refer to standard specifications wherever possible in procurement of materials, parts, tools and fuels for our companies' operations.

In recent months, however, newspapers have devoted more space than usual to this subject in covering Congressional hearings on methods used to purchase equipment and supplies for our expanded defense program.

For more enlightening accounts of the use of standards in purchasing, let us examine a survey of the nation's industries made last year by the American Standards Association for the Economic Recovery Administration.

This survey, "Dollar Savings Through Standards", presents 140 cases citing benefits derived by companies in 81 industries from use of standards, in dollars and percentages. This survey is being used by ECA Productivity and Technical Assistance Division field teams to aid industrialists in Marshall Plan countries to increase production of their mills and factories.

Published as a service to American industry, copies of this survey can be obtained from the American Standards Association, 70 East Forty-Fifth Street, New York 17, New York, for $1.00 per copy.

Many of the 21,000 companies polled by the ASA revealed these significant facts about benefits derived from utilization of standards:

By adopting some standards of a minor nature many years ago, a number of companies found economies accumulated over a long period amount to substantial sums now. Moreover, when the purchasing power of the dollar today is compared with what it was when these standards were adopted, they assume considerable magnitude, especially where the rate of use has risen with that of industrial activity.

Much remains to be accomplished in this field. Many additional advancements can be expected as new industries grow and with the streamlining of older companies' organizations and procedures to meet requirements of intensified competition, higher costs, heavier taxes and materials shortages.



Thomas D. Jolly

What The Reports Show

An analysis of these reports yielded the following facts:

1. Savings were realized by three-quarters of the companies from reduced inventories of materials, parts and products. Nearly as many, 72 per cent, said savings were derived from purchasing "larger quantities of fewer items" and the use of "accepted standard specifications" instead of special specifications in engineering.

2. "Buying most economical quantities", use of industry, national or other standard specifications, and "variety reduction and interchangeability" were benefits cited by the next largest number, 67 per cent.

3. Between 52 per cent and 26 per cent of the check lists showed savings from "fewer materials and smaller variety of parts" and "minimum storage and warehousing costs", most often mentioned, and "economies of special purpose machines", least often indicated.

4. Savings from "modular coordi-

Mr. Jolly is vice president in charge of engineering and purchases, Aluminum Company of America, Pittsburgh, one of the few men in industry to hold this dual role.

He is a past president of the American Standards Association, and also of the National Association of Purchasing Agents. In 1943 he was recipient of the Purchasing profession's highest award, the J. Shipman gold medal, for outstanding service in behalf of the profession.

nation"* were reported by ten per cent of the concerns replying.

5. Standardization contributed savings through "improved interdepartmental coordination", 40 per cent indicated.

PURCHASING's readers will be interested in these comments from the replies received from this survey by the ASA:

A manufacturer of a varied line of products wrote:

"Perhaps the greatest degree of standardization has had to do with purchased materials. A rather complete set of material specifications bearing (our company's) designation, but technically based on the corresponding standards developed by the various national societies such as ASTM and SAE, is used throughout the corporation. These . . . facilitate purchasing in that standard materials may be purchased in larger quantities and the transfer of excess inventory from one plant to another (is) simplified. . . ."

Standardized equipment in the mechanical-electrical field was cited by a large engineering firm for important savings. Excerpts follow:

"We wish particularly to mention the ASME-AIEE Preferred Standards for Large Turbine Generators. The adoption of these standards has enabled the manufacturers to make tremendous savings in the engineering costs of producing large turbine generators, and these savings have been passed on to the consumer."***

Saving at Least a Million

"We venture to say that at least one million dollars has been saved in the cost of equipment and the cost of engineering by our clients since V-J Day by our widespread use of 'preferred standards' turbine generators. This does not include any attempt to capitalize the value of the time . . . saved, in many instances even more important than the dollars saved. . . ."

By reducing the types of special angle cutters for machining dies, from 57 to 28, one manufacturer of nonferrous metal products was able to buy larger quantities of each type selected for all plants. This "resulted in a saving of approximately $10,000 a year on these tools alone."

Recent adoption of four shades of gray as standard for industrial apparatus and equipment was underscored by this notation: "A $25,000 machine tool waited four weeks for a can of paint so that it would match other tools in the factory of the purchaser. The interest charge alone amounted to $125."

One large automobile manufacturer dropped an established company specification for drills, 2½ inches long, and adopted the industry standard, 1⅞ inches drill with a longer tool holder, thus obtaining longer tool life and reducing the cost of drills by $3,500 a year.

Another benefit from standardization reported by a motor car maker recited how adoption of 60 containers for shipping service parts instead of 145 types of cartons formerly used, resulted in a saving of $15,000 annually.

Standardization by suppliers is welcomed by one manufacturer specializing in 'job-produced' air handling and power plant machinery because, "We know that our customers profit by standardization—as do we . . . for instance, NEMA standards built into our equipment. . . ."

Among many notable comments from a producer of precision equipment making excellent use of standards, these will interest procurement men most:

"In World War II, our standard practice books were found to be of great value to the various prime contractors and sub-contractor who made our products, as well as to the vendors who supplied parts. Without such standard practice, interchangeability between products made by different manufacturers would have been impossible. . . ."

"While it is impossible to cite exact economic savings in terms of dollars and cents, the savings we are making through our system of standard parts, engineering and design standard practices, standardized raw materials and manufacturing processes, are estimated to be several million dollars annually.

"Standard parts, such as gears, screws, pins, bearings and electrical components, now account for a major fraction of the components used in current product design. Since these items are used repeatedly, they are stocked and procured in larger quantities with appreciable savings.

"In the materials field we have reduced 30 different paints to 15, 120 different cutting fluids to ten, 50 different tool steels to six, 12 different aluminum casting alloys to three. Savings in procurement, materials handling and shop processing have resulted from such variety reductions.

"We have incorporated industry standards, national standards and some of our own where necessary. This has increased availability of suppliers, particularly in the materials field. . . ."

"We have thoroughly standardized our drawings and drafting room practices. This item alone saves many thousands of manhours yearly within the company and without, particularly now when subcontracting is so heavy in connection with the expanded rearmament program.

"By using broad general materials standards, purchase specifications and a number code materials identification system, we can change our standards to meet materials restrictions without changing individual drawings.

"Similarly, we are using component purchase specifications applicable to many parts so that blanket changes can be made without changing individual drawings. Under emergency conditions, this flexibility is very important and has eliminated the necessity of thousands of costly drawing changes during such periods.

"The number code material system has greatly facilitated the compilation of CMP data.

"The factory has fewer different materials to handle and a corresponding reduction in stock and control records as a direct result of materials standardization. . . . Reduced inventories of materials, parts and storage cost have resulted from our material and component standards. . . ."

Avoid Special Equipment

A large electric utility in a heavily populated eastern state said:

"It is the established policy of this company to avoid special apparatus or equipment wherever practical and to purchase standard items under nationally accepted specifications. This policy operates not only for substation, transmission and distribution (both overhead and underground) and meter equipment, but also for vehicles, tools and miscellaneous supplies.

"For other classifications of projects requiring special engineering the policy is applied to those portions of the project where repetitive manufacture is possible.

"We feel that it would be impossible to carry out the extensive expansion program necessitated by our rapid growth in load, utilizing

*Modular coordination is a coordination of dimensions of building materials and equipment, and the correlation of building plans and details with such dimensions. The basis for the coordination is a standard grid based on a module of four inches. In other words structural components, etc. are designed in increments of the four-inch module. Thus they fit with minimum of hand cutting at the building site.



Benefits of Standardization
Easier to Make, Easier to Buy, Better Prices

available manpower, if our program of standardization of design, of methods and of materials had not been in effect."

The following excerpts are from the savings enumerated by a large western railroad in its report on the benefits obtained through standards:

"There are numerous instances where we have adopted nationally recognized specifications in the purchase of materials to avoid payment of premiums or extra charges for special material . . . for example in steel products, where we have avoided payment of extras by purchase of materials to recognized standards. . . ."

"Similarly, in the purchase of welding rods and electrodes, we . . . standardized . . . by adopting national specifications wherever possible. . . . This . . . has resulted in simplification of stock and benefit in procurement because of larger quantities of fewer items and broader competition among suppliers. . ."

"In our purchases of grinding wheels, we have adopted American Standards Association's identification system and have incorporated these standard listings into a grinding wheel schedule to facilitate purchase and standardized use of the various items.

"Another example of application of standardization has been in our color drift control system for paints and enamels. . . . The use of these color drift control panels has enabled us to obtain uniformity in color from each supplier, thereby broadening competition and insuring consistent appearance of equipment and structures . . . eliminating disputes between supplier and purchaser, simplifying office work and improving interdepartmental coordination. . . ."

"As a further example of advantages of standardization, would point out our adoption of standard cleaning materials. . . . For many years we purchased brand name cleaners which eliminated competition and resulted in high purchase costs, as well as confusion in proper use and control of materials. . . . To simplify stocks and promote uniform practices we adopted a system of specifications for cleaning materials which we are now using to good advantage. . . . By purchasing materials to our specifications we have been able to reduce the purchase cost of cleaners substantially and estimate we are saving approximately $200,000 per year. . . ."

A large eastern carrier listed these advantages in procurement from the use of standards: Purchase of most economical quantities; Reduced volume of accounts, payments, records, etc.; Elimination of disputes; and Broader competition among suppliers.

Its experience also credited standardization with these general benefits: Reduced inventory of materials and parts; Minimum storage costs and Simplification office work.

"While the results from the use of standard specifications are quite obvious and have produced economic advantages," it continued, "the exact savings are intangible and, due to our having used standardized specifications for many years, no before-or-after costs are available."

In an excellent analysis of its use of standards, a large chemical company showed that standards were used in 95 of 103 locations reporting on operations, of which 92 of the standards used were identified. In 1950 total direct savings from four types of standards utilized amounted to $1,156,500.

A large manufacturer of rubber products reported the savings that have accrued from the use of standards in its various activities:

"Our standards people . . . have developed some pretty definite criteria by which they can make rather close estimates of the savings accruing from the application of standards in the several areas of our business concerns.

"When this is done . . . the following interesting figures emerge:

"Purchasing	$20,000,000	annually
"Engineering	5,000,000	annually
"Production	25,000,000	annually
"Distribution	5,000,000	annually
"General	10,000,000	annually
Total	$65,000,000	annually

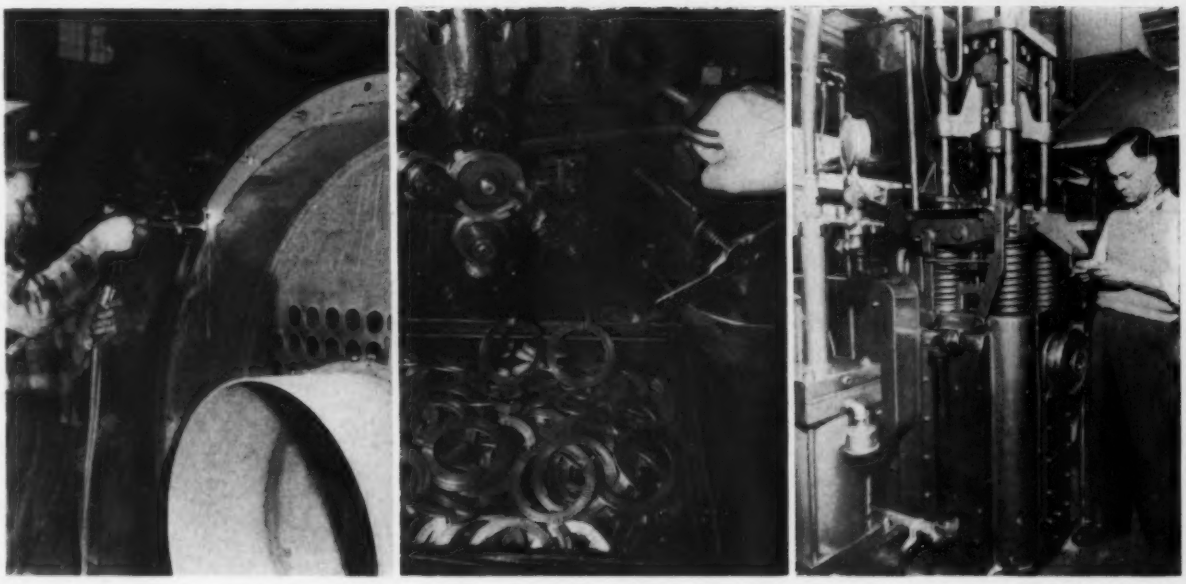
"Of course, these are cumulative figures, the result of long standing efforts to simplify, to reduce, to make uniform, to make interchangeable, to schedule—all aspects . . . of the over-all job of standardization."

In conclusion, from the cases cited in this survey by the ASA and our own personal experience, we know that this is an opportune time to create and to force the development of sound commercial standards in our positions as procurement representatives of our companies.

Nothing under our control as buyers is of greater importance to the nation's over-all economy, for simplification and standardization will effect economies in production, distribution of vitally needed materials, relieve surpluses and satisfy shortages, increase productivity, decrease rejections, simplify procurement and build healthy profits.

At a time when resourcefulness is at a premium, we can honestly support such democratic professional and technical groups as the National Association of Purchasing Agents and the American Standards Association, for their organizations are prepared to come forward with new ideas, new methods and suggestions whenever conditions warrant changes in standards for the welfare of our companies, our country and our fellow citizens.

New Tools, New Methods, New Uses
Sixty Cost-Saving Case Histories



PRODUCTION Tools and Equipment constitutes a broad category. The sixty-odd cost saving case histories in this particular section do not include machine tools, electrical equipment and product finishing equipment, nor materials handling equipment. These have been assigned special divisions in this issue in order to give them the specific attention they warrant.

The user-experience case histories in this section are about such important tools as presses, band machines, cutting tools, welding, portable tools and a long list of other units. These cost saving stories, in conjunction with the other divisions, indicate that opportunity for cost saving abounds in all phases of production and that an investment in modern tools and equipment is often quickly paid off by the savings the purchase makes possible.

In this connection, attention is called to the statement by C. Warner McVicar, Assistant Vice President—Purchases, the Rockwell Manufacturing Company, in article by him in this issue of PURCHASING, to the effect that buyers should keep abreast of technological developments in materials, equipment and methods, systematically selecting and giving particular attention to those things that may be of concern to his own company operations and those of his suppliers. Thus the buyer is qualified to make cost-saving suggestions to engineering and production departments, and collaborate with or select vendors who have adopted equipment and methods that enable them to give the most favorable prices and services.

There are many interesting experience histories in this section. One, for instance, tells about an inexpensive method for holding nonmagnetic materials on a magnetic chuck, which in conjunction with new grinder and selection of proper abrasive wheel, cut machining cost from $9.00 to $1.00 per unit.

An Ohio Company installed five high production automatic presses, the production in stampings equalling that of 65 hand-fed presses. In one instance, the new presses are forming stampings at 1/25th the cost of hand-fed stampings.

Use of air compressor unit on forks of large fork truck, for die key driving, made it possible to release crew of five laborers for other work, in the plant of a large automotive manufacturer. The operator drives up to a forging hammer, raises compressor to the right level, and merely pulls a lever to propel the key-driving ram.

Among the unusual operations, is that of using a power screw driver for driving screws in eyeglasses. The tiny optical screws (.045" dia., 90 threads per inch) are now being accurately and safely driven with a 64% saving in labor costs.

There are many other equally interesting job experiences involving special taps, stud welding, dust collectors, powder metal presses, air presses, fasteners, hobbing steel, "cool grinding", stapling machines, metal stitching and so on. The reader may find several that are applicable to operations in his own plant.

Production Tools and Equipment



Special Taps Increase Production Five Times

A Connecticut manufacturer used 4-40, 8-32 and ¼-32 taps, tapping three holes in molded abrasive phenolic material. Job requirements made it necessary to hold a class 2 fit on all holes. Especially designed taps have consistently saved both time and money, and production has been increased over five times original number of pieces tapped per tap. The special multi-fluted taps hold perfect size, making for higher production.

COST SAVING ITEM—201

New Powder Metal Presses Increase Production 800%

According to Jay R. Semelman, manager, component sales engineering, Lenkurt Electric Co., San Carlos, Calif., installation of new powder metal press, has made it possible to achieve a production rate on some types of products running about 800% previous rates. The company makes equipment for radio and wire-line telephone and telegraph application. Among the components are powdered iron cores on which coils, inductors, transformers and similar products are wound. These cores take the forms of toroids, cylindrical slugs, hollow cups and cylindrical pots.

COST SAVING ITEM—202





Waste Dust Turned into $6600 Profit

A cloth-tube-type dust collector installed at Murray Refractories Co., Murray, Utah, has made it possible to retrieve dust from grinding, screening, elevating and other handling operations, and profit by $6600 per year as a result. The collector continuously filters 100,000 pounds of silica brick material out of the air each month—material that was previously wasted. By-products made from this collected dust are worth $6600 a year.

COST SAVING ITEM—203

Production Tools and Equipment



Deaerated Cooling Water Saves $85,500 a Year

A chemical company in California installed a 5,000 gpm vacuum deaerator some two years ago. Appraising benefits of such factors as clean water lines, better operation of valves, less frequent water line replacement and better water flow, etc. against major corrosion costs, report by the company cites actual net savings of $85,500 per year resulting from the installation.

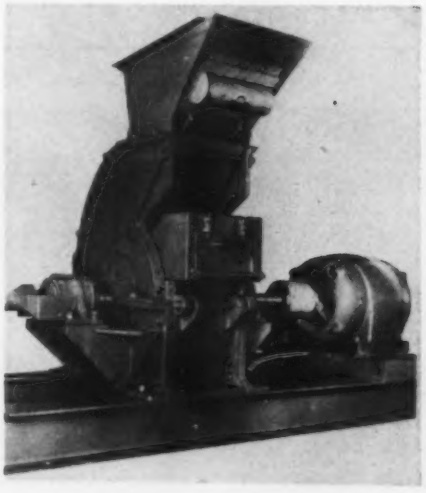
COST SAVING ITEM—204

New Stapler 50% Faster

Illustration shows self feeding hog ring type stapler being used to fasten coil springs to the edge of material in the manufacture of sofa beds, in plants of the Parkway Furniture Co., Lawrence, Mass. The method is many times faster than hand tying, and machine now being used is 50% faster than machine it replaced.

COST SAVING ITEM—205



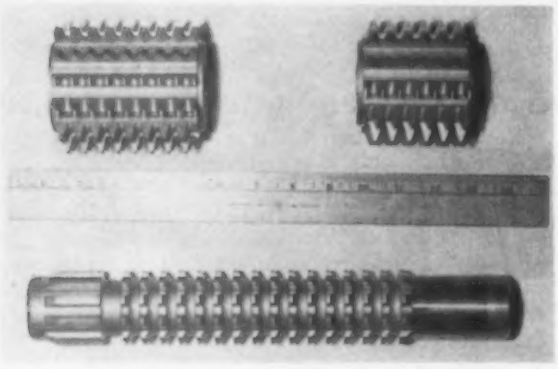


Magnetic Separators Cut Grinding Costs 10%

Installation of an alnico magnet pulley on dry glue feed-belt conveyor before a heavy duty cutter, a stainless steel magnetic pipeline trap in fertilizer line, and a stainless steel plate-type magnet on a hammermill, at Adhesive Division, Armour & Company, Chicago, are reported to have effected savings of 10% on grinding costs by cutting repairs and downtime.

COST SAVING ITEM—206

Production Tools and Equipment



Vapor Blasting Cutting Tools Reduces Cost Per Piece

Following is summary of results obtained by The Massey-Harris Co., Racine, Wis. by application of vapor-blasting—a liquid honing process to cutting tools. Tool, 7-pitch hob used on 8620 steel forging, tool cost per piece reduced 44% ; Tool, 10 spline involute broach used on 8620 forging heat treated to Rockwell C 30, tool cost per piece reduced 69%.

COST SAVING ITEM—207

Calendering Speed More Than Doubled

This 28" x 66" four-roll calender for the production of light gauge plastic films, installed by Ross & Roberts, Inc., Stratford, Conn., calenders at 100 yards a minute. Older type rubber calenders converted for plastics processing are limited to speeds of 30 to 40 yards per minute. New machine also makes it possible to produce extremely light gauge—film as light as .0017" can be commercially produced.

COST SAVING ITEM—208





Stud Welding Breaks Bottleneck

Output of firetube boilers has been boosted 25% by adoption of stud welding to break bottleneck on cover assembly operations at plant of the Superior Combustion Industries, Inc., Emmaus, Pa. Use of single semi-automatic stud welding gun in place of hand welding has made it possible to turn out 20 units in the same limited space where an average of only 16 of the boilers could be completed heretofore. Previous practice in attaching front and rear boiler covers to shell was to drill the shell flanges for ordinary bolts, heads of which were hand-welded to shell. Flux-filled threaded studs ½-in. dia. by 1¼-in. long are attached to shell at pull of gun trigger, at rate of several studs per minute.

COST SAVING ITEM—209

Taping Reduces 3-Hour Job to Eight Minutes

Adoption of new taping technique reduced a three-hour job to eight minutes for the Lisbon Textile Print Co., Jewett City, Conn. The job involved laying fabric to printing table for silk screen processing. Formerly six men doing the job took 30 minutes to hand-pin the fabric. Now, by using a special lay-carriage, two men lay the fabric 96% faster—4 minutes to lay two strips of tape and 4 minutes to lay the fabric. New system has resulted in 40% cost saving over previous year's pinning costs of $99,800. A single tape application can be used for an average of 35 separate printing operations before it needs replacing.

COST SAVING ITEM—210



Production Tools and Equipment



Save 50% in Welding Wire Requirements

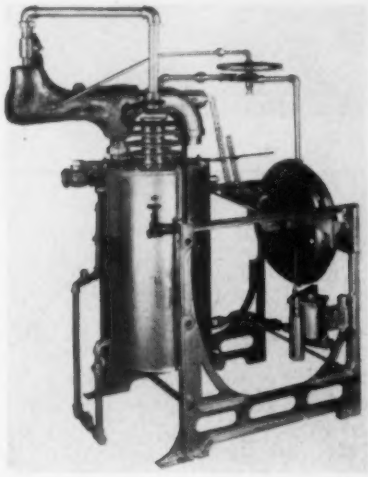
In the welding of large vats to be fabricated from copper-silicon, the James Russell Engineering Works, Inc., Dorchester, Mass., used inert-gas-shielded metal arc welding. Tests had shown that joint preparation could be reduced to a minimum, and further the process made possible the use of smaller welds in most cases. Not only did this save time, but in making more than 12,000 feet of welds required, a saving of nearly 50% was effected in welding wire requirements.

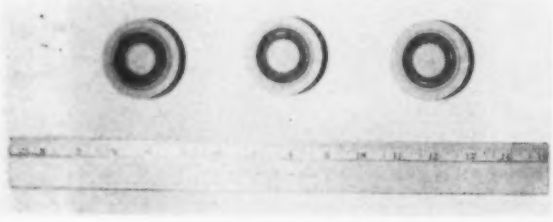
COST SAVING ITEM—211

Oil Vaporizing Unit Cuts BTU Cost 58%

The Scolding Locks Corporation, Appleton, Wis., had been using city gas in baking ovens in japanning department, the average cost of the gas being $1.235 per M cubic feet or for 520,000 BTUs. The company installed oil vaporizing units, one on each baking oven. This unit converts 3.84 gallons of No. 1 distillate to equal the same number of BTUs, the cost of the oil being $.5261. The saving is $.7089 for each 520,000 BTUs—about 58%.

COST SAVING ITEM—212





Vapor Blasting Renews Forging Die Inserts

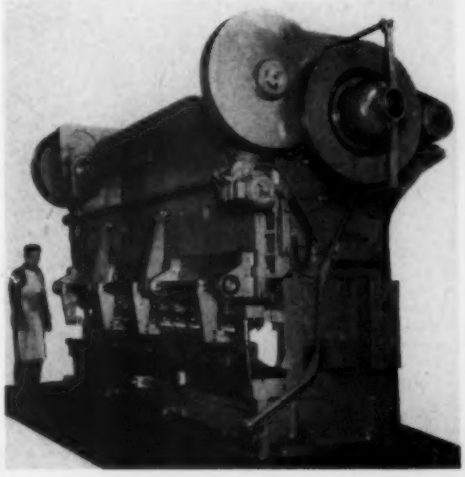
In the belief that the three forging die inserts illustrated were worn out, The Chambers, Bering, Quinlan Company of Decatur, Ill., had the dies dressed by vapor blasting. The inserts then were used in 24 hours production without down time or sticking. The company states that previously eight hours service was the best that could be expected without dressing.

COST SAVING ITEM—213

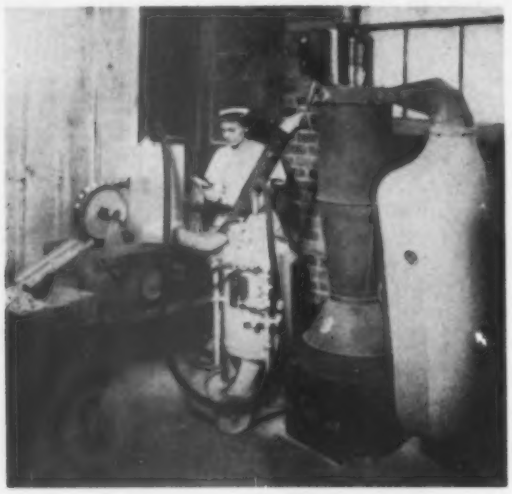
Punching Time Reduced to One-Fifth Former Period

Application of press brake for punching support angles for dust collector, reduced operation time from six minutes per piece to 1.2 minutes per piece, in plant of the American Wheelabrator & Equipment Co., Mishawaka, Ind. Brake is equipped with special multiple punching set-up that eliminates necessity of layout and replaces a single punch operation, resulting in big saving in punching time on angles, channels, truss braces, etc. Equipment on front of machine is special pneumatic clamping equipment.

COST SAVING ITEM—214



Production Tools and Equipment



Dust Separator Cuts Costs 80%

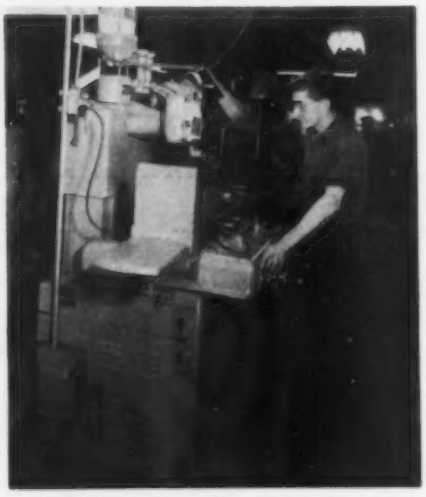
Illustration shows dust separator being used in conjunction with a surface finishing operation on fired ceramic parts, in plant of D. M. Steward Manufacturing Co., Chattanooga, Tenn. According to the company the installation has reduced production costs 80%. The separator enables the operation to be performed without any dust or flying sand hazard in a precision manufacturing area.

COST SAVING ITEM—215

5½ Hour Job Done in 30 Minutes

Approximately three-quarters of a day was consumed cutting carbide bar for large screw machine made by Indiana manufacturer, and the job wasn't always satisfactory. Job was then put on "cool grinding" machine on which the coolant flows through the wheel and atomizes at the point of work, standard wheels being used. Result was job was done in 30 minutes, providing perfect pieces.

COST SAVING ITEM—216





Hobbed Mold Production Increased Ten Times

Use of 5% chromium air-hardening hobbing steel, hobbed for zinc die castings, has upped the life of molds by at least 1000 percent, according to the Peerless Engineering Co., Inc., South Gate, Calif. Illustration shows mold for novelty tie clasps, for which this special purpose steel is hobbed in one push in a 300-ton press by master hob shown at top. Eight clasps are cast at one time, molten zinc being injected at 800 F and 2000 psi; mold temperatures reach about 500 F. Chief engineer states that in making multiple cavities, there is good detail and accuracy with fewer machine hours.

COST SAVING ITEM—217

SIGN the card. MAIL it (no postage required). PURCHASING will request the manufacturer to mail you the information.

1952 PURCHASE for PROFIT

350 Cost Saving Case Histories

Special Editorial Service for Readers!

How to Get the Most out of this Issue!

Three Hundred and Fifty (350) brief, factual case histories of profitable equipment and material utilization are presented in this special annual issue of Purchasing Magazine.

Undoubtedly many of these money-saving, production, operating and maintenance ideas will be of particular interest to you. You will want more information about the equipment, material or methods used.

Therefore, as a special Purchase for Profit service, Purchasing's Reader Service will arrange to have manufacturers' trade literature about the equipment, materials or process you are interested in, sent to you promptly. The procedure is simple—

Each Cost Saving Item is numbered. All you have to do is to circle the corresponding number of each case history that catches your eye, on the prepaid Reader Service postcard on this page, mailing the card at once. Purchasing will do the rest.

SIGN the card. MAIL it (no postage required). PURCHASING will request the manufacturer to mail you the information.
Go through this issue with pen in hand. One inquiry covers all requests.
Let us assume the chore of individual correspondence.

Postage Will Be Paid by Purchasing

No Postage Stamp Necessary If Mailed in the United States

BUSINESS REPLY CARD
First Class Permit No. 16734, Sec. 34.9 P. L. & R., New York, N. Y.

PURCHASING
205 EAST 42nd STREET
NEW YORK 17, N. Y.

Reader Service Dept.

PURCHASING READER SERVICE May, 1952

Circle the numbers of the Purchase-for-Profit cost saving items on which you want more information. These Cost Saving Case Histories start on page 130.

201	202	203	204	205	206	207	320	321	322	323	324	325	326	439	440	441	442	443	444	445
208	209	210	211	212	213	214	327	328	329	330	331	332	333	446	447	448	449	450	451	452
215	216	217	218	219	220	221	334	335	336	337	338	339	340	453	454	455	456	457	458	459
222	223	224	225	226	227	228	341	342	343	344	345	346	347	460	461	462	463	464	465	466
229	230	231	232	233	234	235	348	349	350	351	352	353	354	467	468	469	470	471	472	473
236	237	238	239	240	241	242	355	356	357	358	359	360	361	474	475	476	477	478	479	480
243	244	245	246	247	248	249	362	363	364	365	366	367	368	481	482	483	484	485	486	487
250	251	252	253	254	255	256	369	370	371	372	373	374	375	488	489	490	491	492	493	494
257	258	259	260	261	262	263	376	377	378	379	380	381	382	495	496	497	498	499	500	501
264	265	266	267	268	269	270	383	384	385	386	387	388	389	502	503	504	505	506	507	508
271	272	273	274	275	276	277	390	391	392	393	394	395	396	509	510	511	512	513	514	515
278	279	280	281	282	283	284	397	398	399	400	401	402	403	516	517	518	519	520	521	522
285	286	287	288	289	290	291	404	405	406	407	408	409	410	523	524	525	526	527	528	529
292	293	294	295	296	297	298	411	412	413	414	415	416	417	530	531	532	533	534	535	536
299	300	301	302	303	304	305	418	419	420	421	422	423	424	537	538	539	540	541	542	543
306	307	308	309	310	311	312	425	426	427	428	429	430	431	544	545	546	547	548	549	550
313	314	315	316	317	318	319	432	433	434	435	436	437	438	551	552	553	554	555	556	557

NAME ..... TITLE .....

COMPANY .....

ADDRESS ..... CITY ..... ZONE .... STATE .....

1952 PURCHASE for PROFIT

350 Money Saving Nuggets

To Help Industry Purchase for Profit

Special Service for Readers!

Additional information about any of the materials, methods or equipment that are the basis of the profitable operations described in the 350 Cost-Saving-Items published in this issue of PURCHASING, is yours for the asking.

Each item is numbered. The numbers are listed on the prepaid Reader Service postcards on this page. Circle the numbers of all items on which you want further information, and mail the postal at once. Reader Service will promptly arrange to have manufacturers' trade literature sent to you.

Postage Will Be Paid by Purchasing

BUSINESS REPLY CARD
First Class Permit No. 16734, Sec. 510, P. L. & R., New York, N. Y.

No Postage Stamp Necessary If Mailed in the United States

PURCHASING
205 EAST 42nd STREET
NEW YORK 17, N. Y.

Reader Service Dept.

PURCHASING READER SERVICE — May, 1952

Circle the numbers of the Purchase-for-Profit cost saving items on which you want more information. These Cost Saving Case Histories start on page 130.

201	202	203	204	205	206	207	320	321	322	323	324	325	326	439	440	441	442	443	444	445
208	209	210	211	212	213	214	327	328	329	330	331	332	333	446	447	448	449	450	451	452
215	216	217	218	219	220	221	334	335	336	337	338	339	340	453	454	455	456	457	458	459
222	223	224	225	226	227	228	341	342	343	344	345	346	347	460	461	462	463	464	465	466
229	230	231	232	233	234	235	348	349	350	351	352	353	354	467	468	469	470	471	472	473
236	237	238	239	240	241	242	355	356	357	358	359	360	361	474	475	476	477	478	479	480
243	244	245	246	247	248	249	362	363	364	365	366	367	368	481	482	483	484	485	486	487
250	251	252	253	254	255	256	369	370	371	372	373	374	375	488	489	490	491	492	493	494
257	258	259	260	261	262	263	376	377	378	379	380	381	382	495	496	497	498	499	500	501
264	265	266	267	268	269	270	383	384	385	386	387	388	389	502	503	504	505	506	507	508
271	272	273	274	275	276	277	390	391	392	393	394	395	396	509	510	511	512	513	514	515
278	279	280	281	282	283	284	397	398	399	400	401	402	403	516	517	518	519	520	521	522
285	286	287	288	289	290	291	404	405	406	407	408	409	410	523	524	525	526	527	528	529
292	293	294	295	296	297	298	411	412	413	414	415	416	417	530	531	532	533	534	535	536
299	300	301	302	303	304	305	418	419	420	421	422	423	424	537	538	539	540	541	542	543
306	307	308	309	310	311	312	425	426	427	428	429	430	431	544	545	546	547	548	549	550
313	314	315	316	317	318	319	432	433	434	435	436	437	438	551	552	553	554	555	556	557

NAME ..... TITLE .....

COMPANY .....

ADDRESS ..... CITY ..... ZONE .... STATE .....

Production Tools and Equipment



Daily Bonus $35.36

Replacing slow cleaning units with a 17½ cu. ft. capacity airless abrasive blasting machine for gray iron furnace castings, the Lennox Furnace Co., Marshalltown, Iowa, paid for new equipment within a year with savings through lower cleaning costs and faster production. Since that time they have profited by a daily bonus of $35.36. Two men now clean 17 tons of furnace castings in 16 man-hours whereas it formerly took five men a total of 45 man-hours to clean 16 tons.

COST SAVING ITEM—218

Power Screwdriver Cuts Costs 64% Driving Screws in Eye Glasses

Quickly, accurately and safely, an electric screw driver is being used by an Eastern optical company doing a job that it was felt could not be done with a power driver, namely driving tiny optical screws (.045" diam., 90 threads per inch) in eye glasses. And the job is being done with a 64% saving in labor costs. The machine has super-sensitive clutch, and is fitted with special fixtures developed by the manufacturer for this particular job.

COST SAVING ITEM—219





Save $700 Monthly Cleaning Circular Steel Plates

Armstrong & White, Inc., Cheswick, Pa., by the use of airless abrasive blasting, are now saving $700 a month as compared with old method of removing hot rolling scale and surface rust accumulation from circular steel plates on which are mounted molded abrasive wheels. The cleaning machine, with a 6′ diameter work table rotating the work under abrasive thrown from a rotating bladed wheel in the cabinet roof, cleans and surfaces 250 plates per hour.

COST SAVING ITEM—220

Production Tools and Equipment



Rubber Feet Attached in 85% Less Time

Rubber feet are attached to aluminum ladder legs on metal stitching machines in 85% less time than required for conventional drilling and bolting methods at the Burbank, California plant of Bardwell & McAllister, Inc. The stitches of 0.051-in. dia. steel wire are driven through three layers of material—rubber, aluminum, and rubber. Wire costs are placed at less than 1½¢ per hundred stitches. Assembly by former drilling and bolting method took 135 seconds. Metal stitching cut this time to 15 seconds.

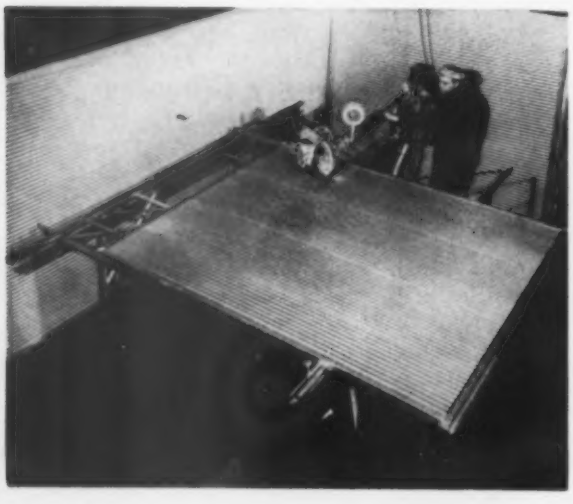
COST SAVING ITEM—221

Air Drills Save Hand-Drilling

Illustration shows installation of air drills on refrigerator line in plant of the Nash-Kelvinator Co., Grand Rapids, Mich. As refrigerator shells roll along on conveyor they stop momentarily below this fixture which mounts 14 air drills. There 14 holes are drilled simultaneously when workman presses single control valve. Under former procedure holes were hand-drilled by two men using steel template. Installation makes for big saving in speed and accuracy.

COST SAVING ITEM—222



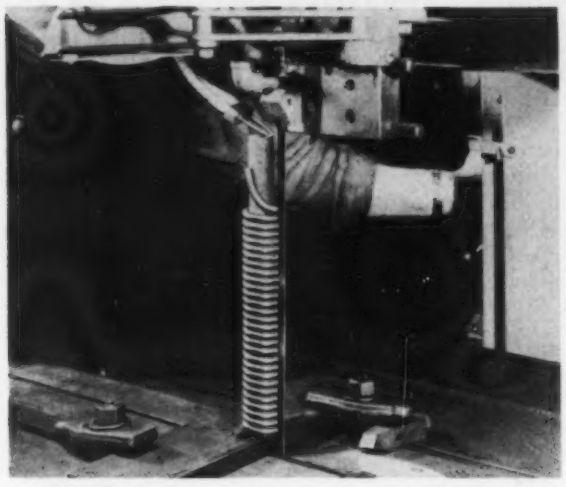


Fastener Costs Reduced 75%, Production Increased 30%

By replacing drilling and riveting with metal stitching, the Tomfohr Overhead Door Co., Portland, Ore., has increased its production of aluminum door assemblies more than 30%. Fastener costs have been lowered about 75%, and labor charges reduced more than 65%. Formerly two men assembled 9 doors per 8-hour day. With metal stitching one man is able to complete a door every 45 minutes, or 12 doors per 8-hr. shift.

COST SAVING ITEM—223

Production Tools and Equipment



Cuts Rings in One-Third the Time

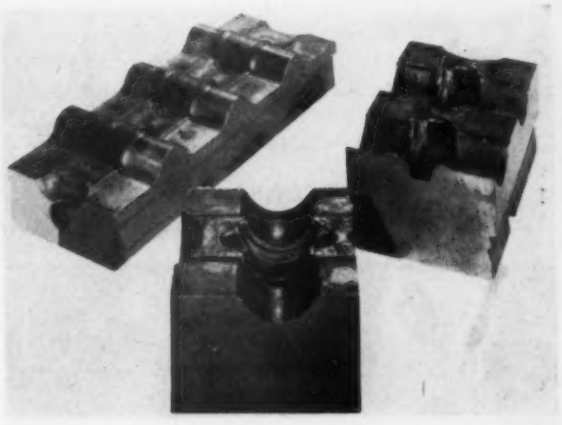
The Gates City Iron Works, Omaha, Nebr., was cutting split rings from ¼" cold rolled steel coils on an expensive milling machine. Putting the job on a band machine, the cutting time was slashed by two-thirds, releasing the milling machine for other work. Gates also uses the band machine for friction sawing of thin stainless, cutting operation time in half.

COST SAVING ITEM—224

Forge Production Increased 150%

These dies were used by automotive manufacturer to forge 105,746 connecting-rod caps, a production record about 150% over that obtained from standard hot work die steel. They are made of precipitation-hardening steel developed especially for the hot working of ferrous and non-ferrous metals in presses and upsetting machines. On being cut apart, it was revealed that working surface of die at right had increased in hardness from 38 Rockwell "C" to 47 Rockwell "C" as result of precipitation hardening from absorption of heat during the forging operation.

COST SAVING ITEM—225





Mechanized Welding Saves 3000 Man Hours Per Year

The Otis Elevator Co. Ltd., Hamilton, Ont., has saved an estimated 3000 man hours per year by the adoption of mechanized helium arc welding for welding the edges of steel elevator doors. Air operated fixture eliminates manual handling. Welding machine consists of torch mounted on carriage which travels on a two rail track. Welds are made with ⅛" tungsten electrode travelling at speed of approximately 25" per minute, and using a current of 135 to 140 amperes. Welding zone is shielded by rectangular box with colored glass window. The box cuts down consumption of shielding argon gas, and the colored glass eliminates need for welding helmet or goggles.

COST SAVING ITEM—226

Production Tools and Equipment



Welding Production Increased 50%

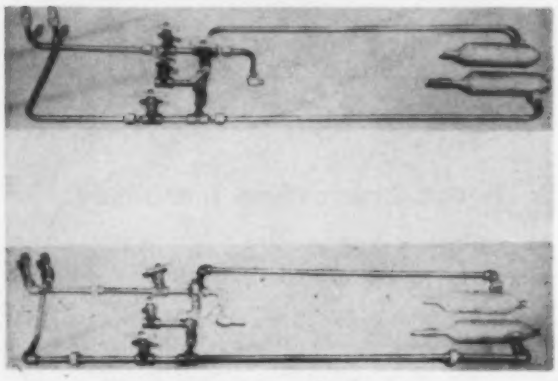
This large hopper car is positioned in less than three minutes for automatic welding by means of quick acting welding positioner which automatically engages, raises, and rotates the 70-ton car to permit finish welding with the submerged arc welding process. The positioner requires only a two-man crew. It is designed to position car without trucks, affording complete accessibility. Approximately 300 feet of welding is done in 17 minutes by ten manual welders and 12 semi-automatic submerged-arc welding. Production is increased approximately 50% over previous methods with one third of the labor required.

COST SAVING ITEM—227

Quality Up, Costs Down 37%

Tubing versus piping for fluid circuits is the story behind the accompanying illustrations of petroleum meter manifold manufactured by the Daniel Orifice Co., Houston. Lower photo is piped assembly. Upper circuit is tubed version of it. Same type valve and traps used in both assemblies. The tubed circuit, using 10 connectors and 10 ft. of tubing costs $9.32 in contrast to piped cost of $14.93 where 15 connectors and 22 nipples are required. Tubing and top-quality three-piece flared-tube fittings saved 37% of the circuit cost.

COST SAVING ITEM—228





Air Presses Step Up Production from 300 to 438 Assemblies Per Hour Per Operator

Previously main operation in the assembly of razors in plant of Gillette Safety Razor Co., Boston, was done by hand on an arbor press. The manual set-up was a bottleneck in the production line. The problem was solved by installation of twelve air presses operating on 60 lb. air pressure, which stepped up production from an average of 300 to 438 assemblies per hour for each operator.

COST SAVING ITEM—229

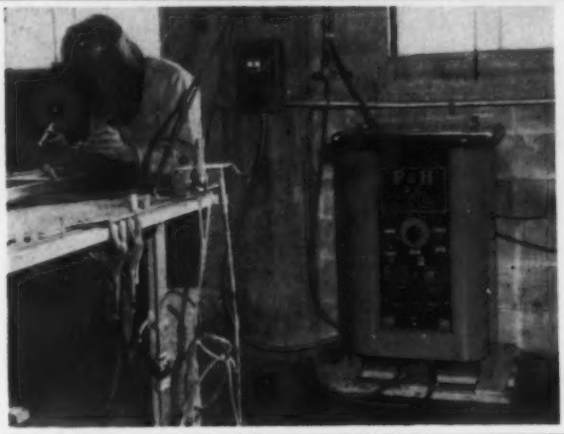
Fork Truck Replaces Forge Shop Crew of Five

An air compressor unit carried on forks of 12,000 lb. fork truck, makes die key driving easy for large auto manufacturer. The operator drives up to a forging hammer, raises his forks to the right level, gets off truck and pulls a lever to propel the key-driving ram. Formerly a crew of five laborers jockeyed a 6 ft. steel ram into position to drive the keys home. Fork truck is used full-time on key-driving jobs. It takes the risk out of the work and the laborers are released for other production.

COST SAVING ITEM—230



Production Tools and Equipment



Inert Gas Method Ups Production 70%

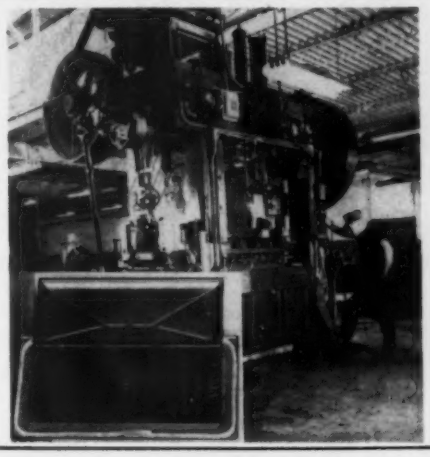
In Tampa, Fla., a steel equipment company fabricates window frames of various sizes and shapes using 1/16" to ½" thick aluminum and stainless steel sheet and extruded forms. Before switching to inert gas fabrication, frames had to be cleaned of grease, prior to welding, and sanded and polished afterward. This before-and-after welding labor has been so greatly minimized with the inert gas method that the resulting time savings have increased production 70%. There is greater operator acceptance too.

COST SAVING ITEM—231

Five Automatic Presses Equal Production of 65 Hand-fed

Installation of five high production automatic presses at the plant of the Lima Register Company, is reported to equal the output of 65 hand-fed presses in the production of a varied assortment of stampings. Among the unusual savings achieved, floor register valve cost is a good example. This unit now formed at the rate of 80 a minute, costs only 1/25th of a hand-fed stamping.

COST SAVING ITEM—232





Save $153 Daily Surfacing Metal for Glass Coating

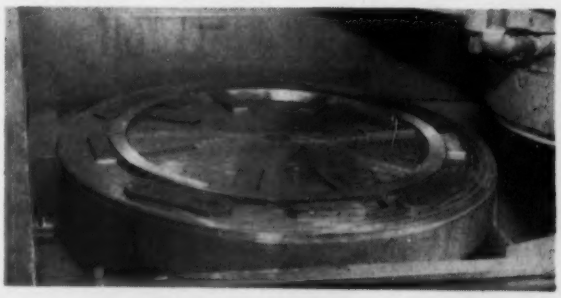
By the use of airless blasting to put a matte bonding surface on bolts before they are glass coated, the Sta-Rite Products, Inc., Elkhorn, Wis., is saving $153.60 daily. A two cu. ft. airless blast machine makes it possible to surface 2000 bolts in 20 minutes and make a 72% saving of $.0128 per bolt. Machine paid for itself in less than three months.

COST SAVING ITEM—233

Machining Cost Cut from $9.00 to $1.00

Illustration shows special alloy stainless steel ring on magnetic chuck held in place by means of magnetic material. The ring is 28" OD by 9/16" thick, and surface to be ground one side is 2½" wide. It was necessary to remove .070" of stock to very close tolerance. By previous machining operations used, the cost was $9.00 per piece. With installation of new grinder and selection of proper abrasive wheel, cost for machining piece was reduced to $1.00 per ring. This job indicates inexpensive method of holding non-magnetic materials on a magnetic chuck, and tremendous cost reduction in actual machining.

COST SAVING ITEM—234



Production Tools and Equipment



Cartridge Powered Stud Driving Saves $8000

Production increased at a saving of over $8000 in labor costs when Straus-Frank Co., Houston, Tex., turned to self-powered stud drivers to set fastening studs. More than 20,000 studs were set in concrete to support air ducts at average rate of 50 studs per hour, including down time. The cartridge powered tool outproduced older methods by 8 to 1. The driver weighs but 5½ pounds.

COST SAVING ITEM—235

Arc Welding Speeds Aluminum Trailer Production

For light-weight strength, 61S-T6 aluminum structural shapes and plates were used in all welded aluminum trailers fabricated for the U. S. Air Force by the Marotta Engineering Co., Boonton, N. J. Inert-gas-shielded metal arc welding was employed in the fabrication. Each trailer required 260 lineal inches of weld. A new trailer came off the line every half hour, eight being complete in the time required to weld one had older methods of welding been employed.

COST SAVING ITEM—236



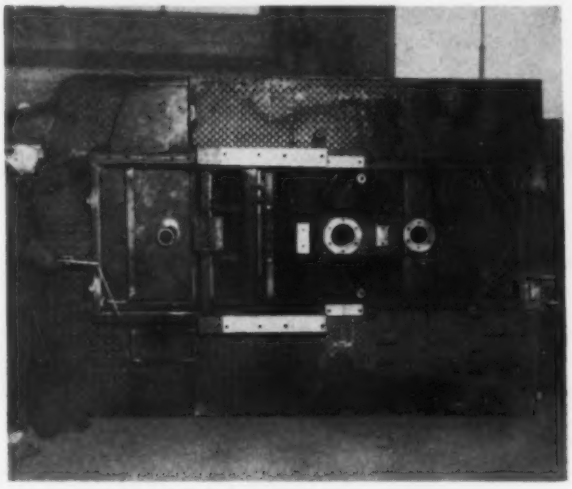


Air Ram Cuts Cost from .005 to .0017

Costs of press fitting two hardened bushings into a spacer were cut to one-third the old rate when the Dunnington Mfg. Co., Indianapolis, Ind., built this unusual set up using rotary work feed table and air motor. The operator merely lays the parts on the 12 station rotary feed table which moves them to position under the air powered ram. Ram and table are electrically synchronized.

COST SAVING ITEM—237

Production Tools and Equipment



Welding Time Reduced from 39 to 6 Hours

Use of positioner for most of the welding on the main frame of ⅜-yard—5-ton capacity truck-mounted excavating and lifting equipment made by the Schield Bantam Co., Waverly, Iowa, has reduced welding time from 39 to 6 man-hours. Machine gas cutting also plays an important part in the production line, speeding preparation of parts for welding.

COST SAVING ITEM—238

Keeps Molds Clean 16 Times As Long

Before Anchor Rubber Products, Inc. switched to a silicone-containing mold release agent, this 81-cavity and precision pin mold had to be taken down and cleaned once a week. Cleaning was complicated because all the pins had to be removed and reset by hammering after cleaning, forming burrs which had to be ground off. The silicone release agent gives easy release and keeps the mold clean 16 times as long. Cleaning schedules have been revised from once a week to once every four months.

COST SAVING ITEM—239





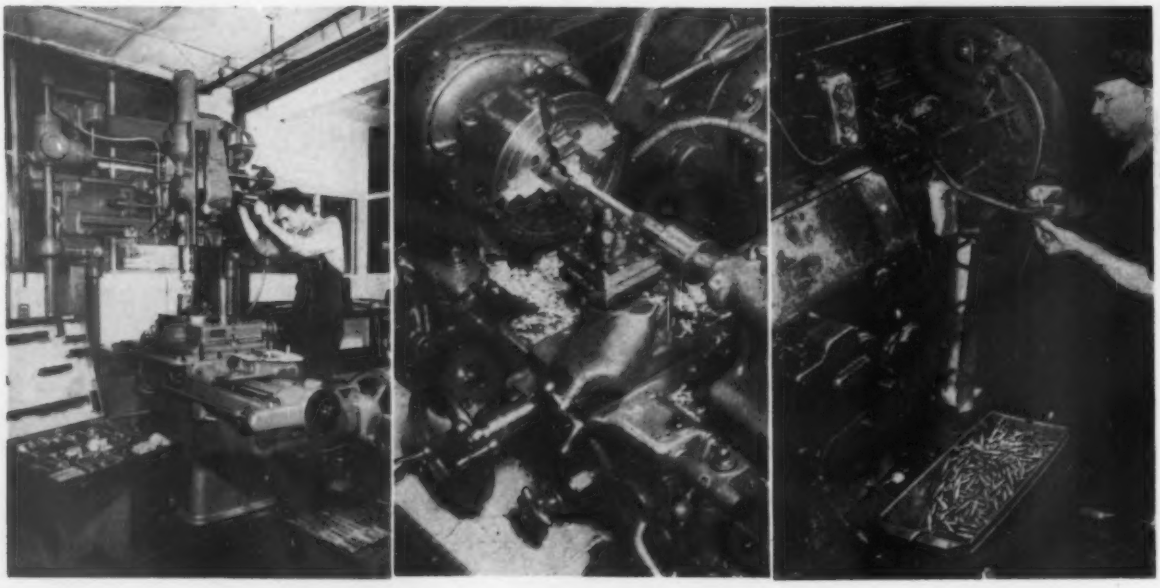
$11,549 Annual Saving on $3000 Investment

Six-part magnetic switch assembly is staked together with a single ram stroke of a four-ton multipress equipped with a six-station indexing table, automatic control, and dual punch mounted in "equalizer head". Results: Production speed almost double; scrap losses 83% lower; two different switch types produced in continuous 5 to 1 ratio without tooling changes; quality higher, necessity for "chasing" threads on staked parts eliminated; work hazards eliminated; and, an $11,549 annual saving on a $3000 investment.

COST SAVING ITEM—240

(Please turn to page 340)

New Machine Tools and New Uses Cut Production Costs



MACHINE tools must be judged on the bases of depreciation and obsolescence. Of the two factors, obsolescence is by far the more important. Obsolescence is also a harder test of Purchasing imagination, alertness, experience and general capability.

A machine tool depreciates as rapidly as the government tax allowances say it does, or as rapidly as the cost of repairing or maintaining it rises, whichever is greater. But a machine tool becomes obsolete as rapidly as new machines or methods which will do the same work faster, at lower costs, with greater safety, or which will permit the developing and marketing of new products, become available. And it is easy to see that these obsolescence factors require level headed judgment on the part of the buyer who is to weigh them.

Age of the present tool is no criterion of obsolescence. For example, the jet engine industry never has accumulated a supply of machine tools old enough to have depreciated extensively. Yet a vertical turret lathe with unusually high boring mill working on 48 inch aluminum rings is stepping up production more than 25 per cent over previous methods. And this same machine with its ability to turn metal sections ranging from one half inch to just under seven feet in thickness will solve hundreds of new product production problems.

Size of production run is not a determining point. In a stamping plant working on high chrome high carbon parts a new lathe is instantaneous in change-over from versatile small run engine lathe jobs to high run automatic duplicating jobs. It is saving 50 per cent on production time.

Operations can be eliminated: A new broaching machine eliminated milling, grinding and deburring from a laminated assembly made of soft iron. It jumped the production rate from a previous 75 pieces per hour to better than 600 pieces per hour.

Fatigue elimination can count: A 4-spindle automatic built so compactly that one man can easily reach any of the four work-loading stations from a fixed position reduced operator fatigue to the point where one man now does an amount of work which formerly required two.

Set up time can be very important on small lot production: On runs averaging about 500 pieces a new automatic which was fifty per cent faster in set up time increased production 7 to 8 times.

Floor space savings can be dramatic: A new boring mill with one operator on one shift does work that required fifteen operators for five machines on three shifts.

Of course, many an older machine tool can still prove its right to remain in the plant. The safe rule is to study every machine every year. This will result in obsoleting most of them by their fifth birthdays, and some of them much sooner than that. In keeping the production equipment up to date there is no substitute for sensitive alertness to the capabilities of new designs.

Machine Tools



57% Less Threading Cost

Solid adjustable die head on automatic chucking machine cut the cost of one threading operation by 57% in the plant of a large middle western manufacturer. The operation required the cutting of a 1 11/16" dia. 14 pitch thread ½" long on cast brass valve bodies. Tolerances were easily maintained. The head fit perfectly into the highspeed cycle of the chucking machine, and produced an average of 210 finished pieces per hour, revolving at 385 rpm. Major factors were low down-time and low tool cost occasioned by long tool life. Output of finished pieces averaged from 4000 to 5000 between chaser grindings.

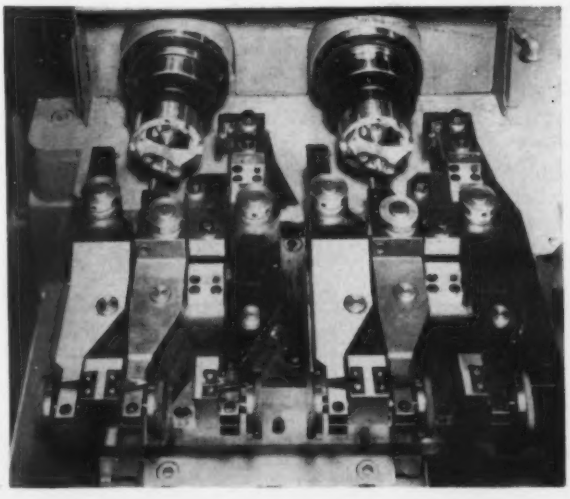
COST SAVING ITEM—241

Semi-Automatic Slashes Labor Cost 50%

Illustration shows 4-spindle semi-automatic machine in plant of manufacturer of automobile parts, mass producing 7/16 18-P threads 2¼" in length on tie rod sockets. The threads are cut to a Class 3 fit at the rate of 520 pieces per hour. Operation was formerly performed on a double-spindle machine at twice the cost in labor. Machine is so compactly built that one operator can easily reach any one of the four work-loading stations from a fixed central position, enabling one man to do the work of two with minimum operating fatigue.

COST SAVING ITEM—242





New Boring Machine Replaces Five Machines

This new precision boring machine is accomplishing the following benefits on one setup: Job was previously done on 5 different machines each with one male operator, and to get required production these machines were run on three shifts, making a total of 15 operators. The new boring machine replaced the five machines and maintains the production schedule on one shift. One girl operator runs this machine. Also, the new machine is able to hold closer tolerances from piece to piece and maintain a quality surface finish. Some of the dimensions formerly maintained by accuracy of die are now machined, machining being incorporated in the setup on new machine at practically no cost.

COST SAVING ITEM—243

Machine Tools



Production Jumped to 600 Pieces Per Hour

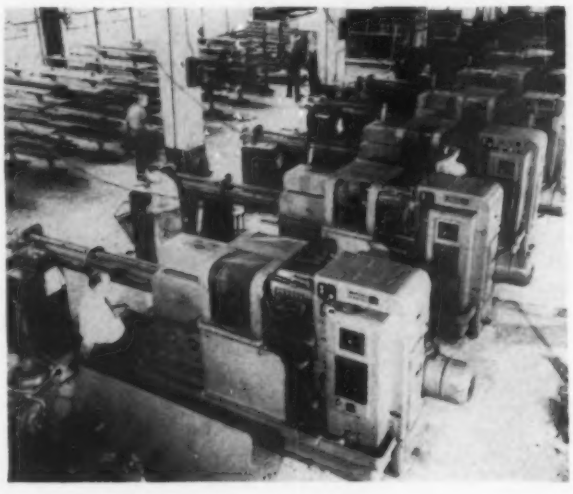
This 30 x 42" stroke, single slide vertical surface broaching machine is shown in operation at the Square D Company, Milwaukee. Parts broached include laminated armature and magnet frame assemblies used in magnetic starters. The material is soft iron which tears and burrs easily. Previous handling involved milling, grinding and deburring and best production was 75 pieces per hour. The new broaching machine produces far better finish, requires no deburring, requires one operation instead of three. Ten different sizes and shapes of assemblies are accommodated on two sets of fixtures. Production is better than 600 pieces per hour. Broaching operation is continuous and automatic. Operator merely unclamps and removes broached part, loads and clamps rough part.

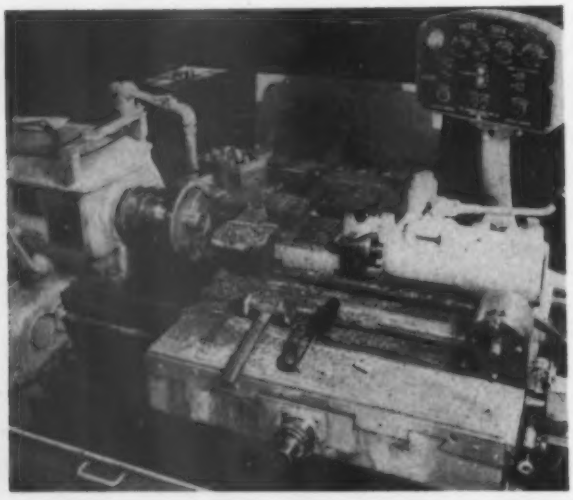
COST SAVING ITEM—244

Six Critically Needed Men Released

At the Otis Elevator Company six 5-spindle automatics replaced 17 older machines, and six critically needed men were released for other important work. The automatics are used for short runs on specially machined parts—studs, bolts, nuts, and other screw machine products. Only 3 men are required to set up and operate the 6 automatics. Parts are now more uniform and are produced at a higher rate.

COST SAVING ITEM—245



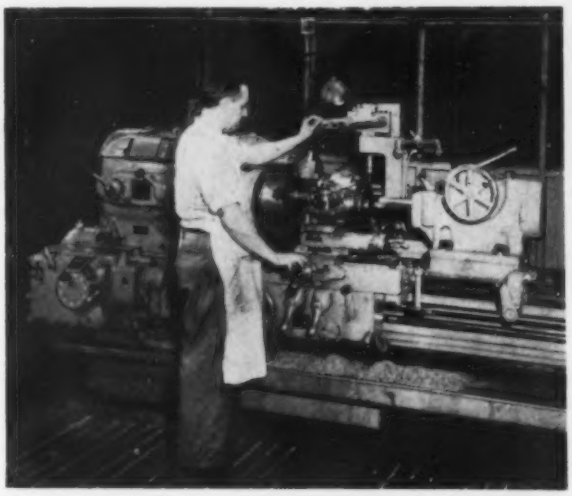


Lathe Production Increased 40%

Production on lathe at Sterling Electric Motors, Inc., Los Angeles, Calif., has been increased 40% by installation of lever controlled infinite variable speed electric power drives. The lathe is used for turning and facing variable pitch pulleys. This unusual application of variable speed makes possible maximum machine output by providing for automatic, continuous adjustment of spindle speed so that cutting speed is uniformly held at 375 fpm over the changing diameter of the pulley face. This is accomplished by a direct linkage from the machine cross slide to speed adjustment lever on the control drive.

COST SAVING ITEM—246

Machine Tools



Lathe Saves 50% on Production Time

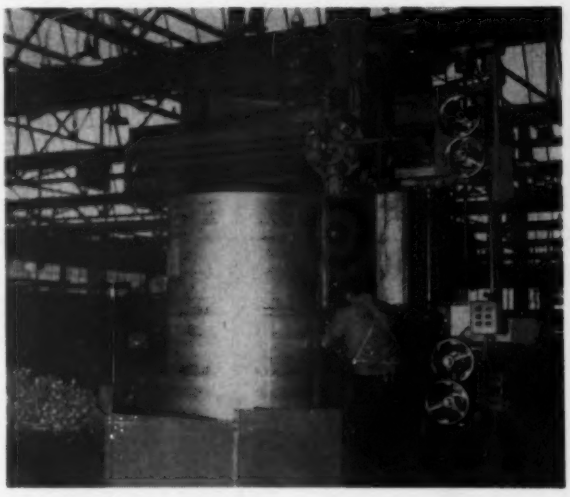
This lathe is as productive on automatic duplicating as it is versatile on engine lathe work, and change over from one to the other is instantaneous. Fast or round templates may be used for fast automatic production of any number of parts. It is used by the Norris Stamping and Manufacturing Co., Los Angeles, to machine and redress high-chrome, high carbon auto rim rolls having hardness of 62 to 65 Rockwell C. Vice President John C. Buchanan says the machine saves "not only on manpower but also time and tied-up machinery." Previously two lathes and two men were used to do the work now done on this machine by one man.

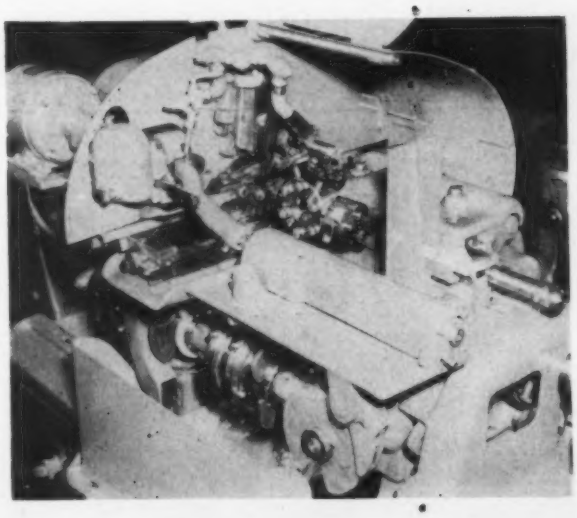
COST SAVING ITEM—247

Production Stepped Up 25%

Illustration shows vertical turret lathe with unusually high boring mill, known as the "Hi Boy", installed in plant of Ryan Aeronautical Co., Lindbergh Field, San Diego, Calif. The new machine weighs 32 tons and is 13 ft. high. It has 64" diameter turning table for specialized milling on unusually tall parts. Metal sections measuring from one-half inch to just under 7 ft. in height are turned with ease. On basis of first job runs, production on items like 48-inch aluminum rings will be stepped up 25% over previous methods. Similar increased production rates are anticipated on steel cones, aft frames, and other jet engine parts. One man can run machine safely and efficiently.

COST SAVING ITEM—248





Drill Life Increased 300%

The job—machining socket parts from copper. The problem—excessively short tool life and staining of the copper. The solution—By changing the cutting coolant to one especially designed for this type work, this New York State manufacturer tripled the life of his drills and eliminated staining. In addition rejects were reduced, and lubricating expense lowered because the new cutting fluid could be used both as coolant and machine lubricant.

COST SAVING ITEM—249

Machine Tools



Chaser Life Increased 25%

By changing over to an improved cutting oil on threading machines, Borneman & Peterson, Flint, Mich., found that use of the new oil produced a better thread, and increased chaser life approximately 25%.

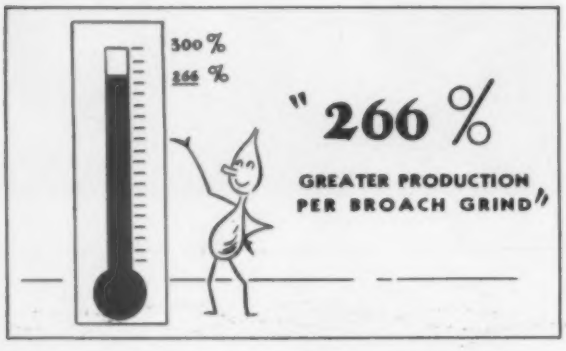
COST SAVING ITEM—250

Set-Up Time Cut 50%, Production Increased

This battery of 5-spindle automatics is cutting costs for the Colson Company, Elyria, Ohio. The new machines have made it possible to cut setup time more than 50%. Furthermore, production is up 7 to 8 times on lots of 500 to 10,000 pieces. Machines provide easy access and interchangeability of tooling.

COST SAVING ITEM—251





266% Greater Production Per Broach Grind

Part, steel forging. Operation, broach clutch hub. Broach ran hot requiring shutdown every two hours for cooling with coolant formerly used. Manufacturer changed to an all chemical metal working solution. Result: Production jumped to 7700 pieces per broach grind, marking 266% increase in production.

COST SAVING ITEM—252

Air Motor Ups Lathe Production 40%

An eastern manufacturer turning threads on the ends of long hex, square and round steel bars, found tightening the lathe chuck by hand an arduous job. An air motor was mounted on the lathe to tighten the chuck, making the job much easier for the operator. In addition to eliminating job of tightening chuck with 3′ pipe, production was increased 40% through savings in time over the hand chucking operation.

COST SAVING ITEM—253



Machine Tools



Save Drills and Taps

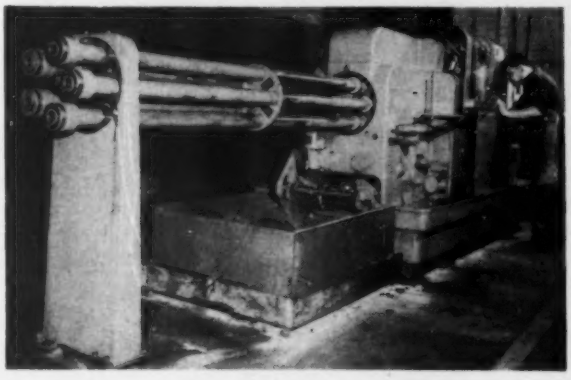
Job, steel casting. Operation, drill 11/16" hole ⅜" deep. Tap ¾"—No. 20. Formerly used soluble oil, obtaining 1984 pieces in 50 hours, using 41 drills and 25 taps. Changed to all chemical metal working solution, producing 76 pieces more in 50 hours, using only 12 drills, 8 taps.

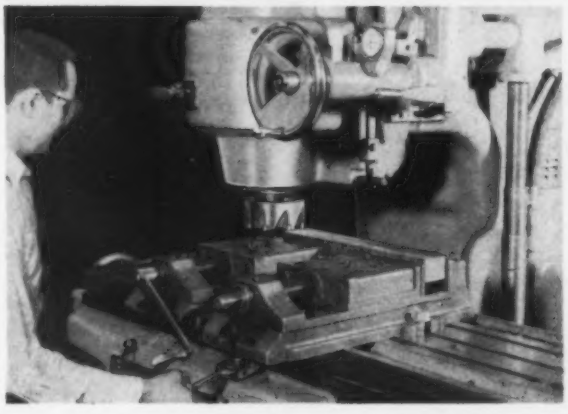
COST SAVING ITEM—254

Automatic Bar Machine Does Work of 7 Production Lathes

With the installation of one 5-spindle automatic bar machine, which is doing the work of seven production lathes at Electrol Incorporated, Kingston, N. Y., production increased 5 to 10 times, labor cost was reduced 93%, capital investment reduced 66%, power cost reduced 71%, and floor space was reduced 70%.

COST SAVING ITEM—255





New Milling Machine Cuts Production Time 75%

Operation: Face mill four side. Workpiece: Ram for slotting attachment. Material: SAE 4615 forging—2¼" x 2¾" x 18½". Machine: New vertical milling machine. Cutter 6" dia., 8 tooth carbide face mill with 7" negative rake angle. Machining time 3.8 minutes, marking a saving of 11.9 minutes or 75.8% as compared with former process.

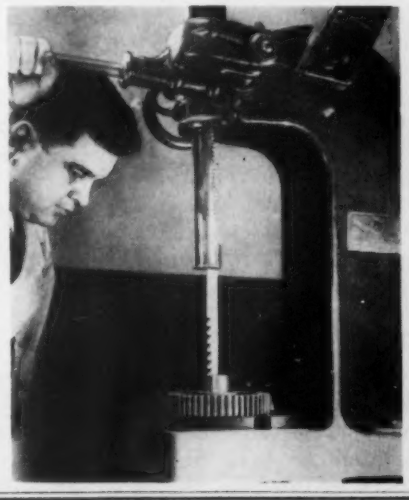
COST SAVING ITEM—256

Keyway Cutting Time Cut 75%

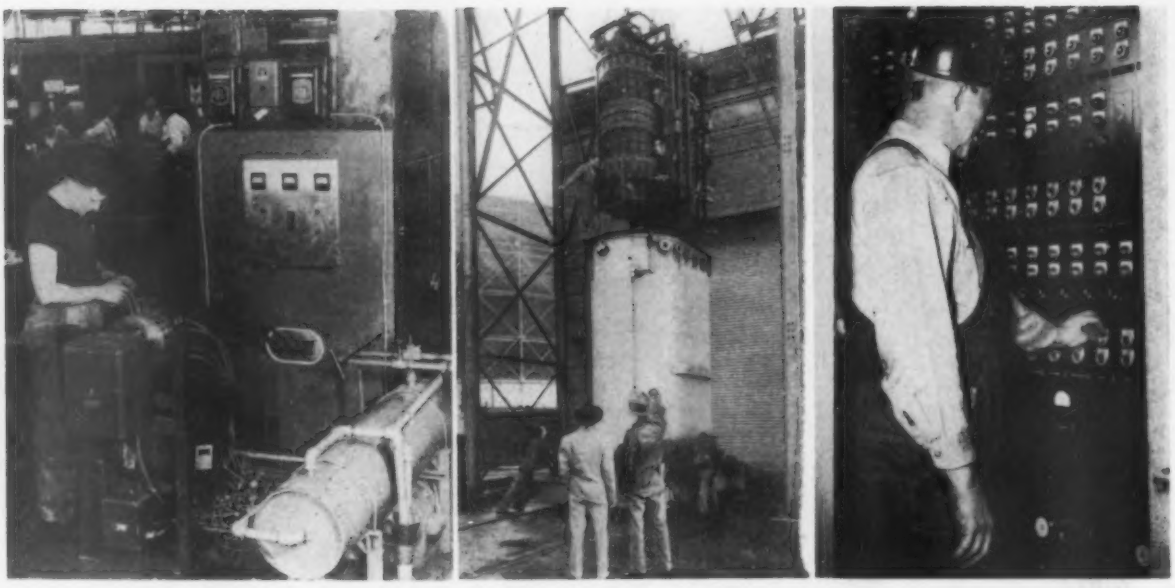
The Hunter Fan and Ventilating Co., Memphis, Tenn., has replaced four operations formerly required to cut ⅛" keyways in die cast aluminum, by a single operation employing improved production type keyway broach. Only one pass is required to complete the standard depth of cut.

COST SAVING ITEM—257

(*Please turn to page 378*)



Cost Savings With Electricity



IT is estimated that electricity supplies about 95% of the horsepower required for industrial and manufacturing operations. In the utilization of this power, a vast number of electrical equipment units and components is used, ranging from giant turbines to minute resistors.

As in other branches of industry, the electrical industry is ever introducing new equipment and components that make for more efficient and dependable use of power, that cut power, production and maintenance costs, and simplify or improve the operation of machines of all kinds. New control centers, new and more efficient insulation, self lubrication, induction and dielectric heating, electronic controls and improved lighting have all been the basis of lower operating and production costs for industry.

In spite of the tremendous advances that have been made among both manufacturers and users of electrical equipment, it is the opinion of leaders in the field that the potential for electrical operation is but half reached in terms of things that electricity makes possible of accomplishment. Hence, in the light of what already has been accomplished, the conclusion is easily reached that buyers and users of electrical equipment and parts will find the products and technological developments announced by the industry of basic interest from the standpoint of better, faster and cheaper production within their own plants, or in the building of their own products.

This "Electrical" section contains 39 case histories of cost savings that have been made possible by the use of electrical equipment, electrical tools, and components. There are case histories that tell about the benefits of using electric furnaces by the S. S. White Dental Manufacturing Co. of Philadelphia, and how the versatility of a machine was increased 40% by replacement of single speed motors with speed control variable motors, resulting in 30% more production, and a 10% reduction in rejects in a Los Angeles plant.

Another case history recites how the Cessna Aircraft Company, Wichita, Kans., increased the speed of brazing operations on some parts as much as 800% by the use of induction heaters, and one that tells how a door manufacturer increased production 450% and cut costs 66% by using metal cutting electrodes for "drilling" holes.

One of the case histories tells how a razor manufacturer cut the cost of cleaning costs 58% with ultrasonic vibrations. In another case, a company printing multicolor wrappers installed electronic color register control on a rotogravure process. Not only did this installation permit a substantial increase in press speeds, but close register is held on such difficult materials as cellophane, pliofilm and cellulose acetate. It is calculated that the savings in rejects will more than pay for the equipment within a year.

The foregoing are but samples of some of the idea-giving case histories you will find in this section.

Electrical



Fuse Failures on Lead Pot Circuits Stopped Cold

Difficulty was experienced in plant of Detroit News keeping electric heating circuits on lead pots in full operation. Lead pots are electrically heated by single phase, 220 volt, 10 kilowatt elements, fed from a 220 volt, 3 phase source. Circuits on each are protected by sixty 60 ampere and nine 400 ampere, 250 volt fuses. Some 207 fuses were checked every two weeks, and electrician would find six to eight of the 60 ampere fuses open. There was loss of efficiency and fuse maintenance and purchases were greater than they should be. March 9 1951, all fuses were changed over to dual-element fuses of same amperages previously used. Fuse failures have been nil.

COST SAVING ITEM—258

Modern Lighting Saves Between $5000 and $6000

Molding department of Foster-Grant Co., Inc., Leominster, Mass., is approximately 150′ x 120′ with 12′ ceiling. Lighting of area is by 10′ fluorescent units mounted 10′ 6″ from floor and 2-lamp 85-watt sections, also 4-lamp 85-watt ballasts with 200 to 250 volt rating. Units are mounted on continuous rows by 8′ centers, giving average of 85 fc. Floors are white with green side walls. The company has reported that, using over 600 5′ units in this area they saved between $5000 and $6000 using the 85-watt 4-lamp circuit.

COST SAVING ITEM—259





Booster Station Saves Huge Investment

Daily increase of 20,000,000 gallons of water has been made possible through the use of electrically-driven booster pump at Phoenix, Ariz., which uses 800-hp motor to drive the pump, and five-hp motor to operative valve which connects the pump to a 48-inch main. Cost of the installation is about $70,000—a fraction of the estimated $400,000 cost of a new pipeline with the same capacity. The pump has a peak capacity of 50,000 gallons per minute, or 72,000,000 gallons per day.

COST SAVING ITEM—260

Electrical



Diesel Electric Locomotive Saves $5600 Annually

This 45-ton diesel electric locomotive is saving the Louisville, New Albany and Corydon Railroad an estimated $5600 a year in maintenance and operating costs. Operating cost reductions approximate 87.5%, enabling release of 31-year old steam locomotive. It is expected that the diesel will pay for itself in less than seven years.

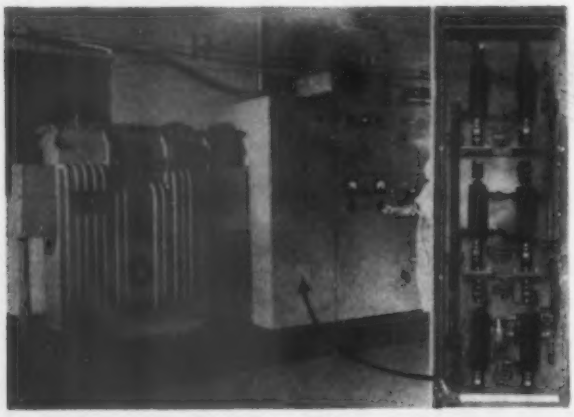
COST SAVING ITEM—261

Induction Heater Cuts Reclamation Costs 90%

Cost of reclaiming valuable metal strips from rejected weather stripping has been cut more than 90% with a 5-kw induction heater at the Sponge Rubber Products Co., Shelton, Conn. Reclaiming was formerly done by soaking the strips in a chemical solvent, peeling the rubber off by hand. Cost of the chemicals was approximately $4000 to $5000 a month. In new set up, rejected strips are placed on continuous conveyor belt, pass through an inductor coil connected to induction heater, and are stripped immediately by gloved workman. Cost for power is approximately 80¢ for eight hour day.

COST SAVING ITEM—262





Unit Substation Saves $25,000 Annually

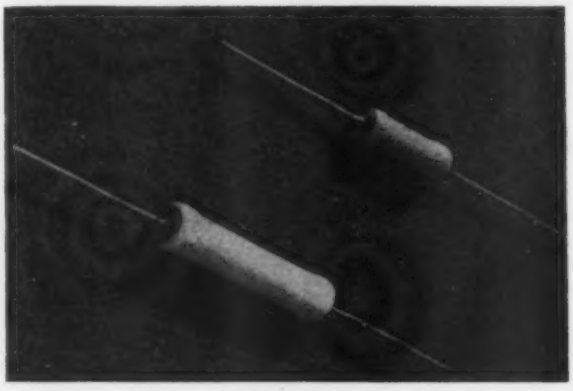
By installing D-C unit substation and using purchased power, the St. Paul Foundry & Mfg. Co., St. Paul, Minn., is saving $25,000 annually in fuel, operating and maintenance costs. Purchased power is a-c, but the plant requires d-c power for yard cranes and hoists. To tie these two systems together a six-tube sealed ignitron rectifier was installed. It operates 24 hours a day, 7 days a week.

COST SAVING ITEM—263

Power Resistor Cuts Installation Cost 47%

Eastern communications equipment maker had been using 10 watt vitreous enamel wire wound power type resistors equipped with through-bolt mounting brackets and lug type terminals. Assembly plus installation costs amounted to 49¢ per unit. Substitution of 10 watt axi-ohm (axial lead) power resistors reduced installed costs to 26¢ per unit. The saving was made possible by elimination of mounting brackets, panel drilling, and extra wiring. Also, the axial lead units occupy less space.

COST SAVING ITEM—264



Electrical



Induction Melting Furnaces Save $60,000 Annually

Use of induction melting furnaces by large Eastern foundry company brought saving of $60,000 annually just by reducing chromium losses alone. The furnaces are used for melting stainless steel alloys. There is no chromium loss account oxidation.

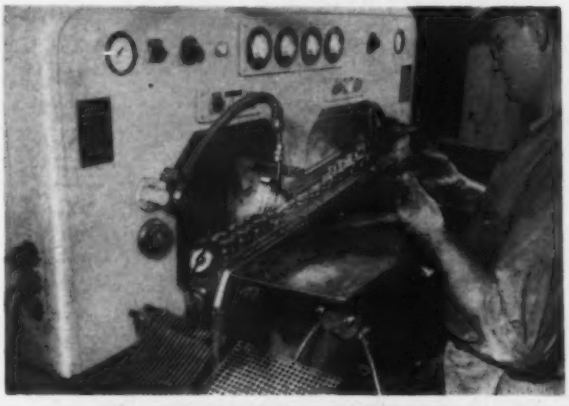
COST SAVING ITEM—265

Lighting Saves On Materials Alone

Installation of new lighting system in weave room of the Judson Textile Mills, Greenville, S. C., which provide maintained lighting level of 54 fc, and consists of continuous rows of slimline 8' HFFS-296 and 4' HFFS-248 industrial fixtures with weatherized top housing and porcelain reflectors (all two-lamp units), has made for a saving of $1500 per year on materials alone in inspection operation, according to W. T. Watson, plant engineer. These materials include drop cord lamps, the shop cost of making them up, etc. It does not include additional time previously required by inspector to make inspection. He estimates that savings in production costs and time will pay for installation in three years.

COST SAVING ITEM—266





Induction Heating Saves $3.50 per Batch

Use of induction heating unit for the selective hardening of special tractor transmission nut in plant of the International Harvester Co., is saving $3.50 on every batch of 600 pieces. In previous process the part was copper plated, carburized and hardened in batch-type furnace, cleaned and threads rechased. Adoption of new process which handles 600 nuts per hour, eliminates these operations.

COST SAVING ITEM—267

Sintering Furnaces Cut Part Costs 60 to 90%

Use of electric sintering furnaces enable Powdered Metal Products Corp. of America, Franklin Park, Ill., to sinter many intricate parts which formerly required machining—with production savings from 60 to 90 percent, due to uniform temperature throughout heating zone. Production costs on gear pawls, for example, were cut by 60%, and costs on governor weights were cut 90%.

COST SAVING ITEM—268



Electrical



Induction Heat Saves 10 Tons of Steel A Day

Improved forging methods utilizing induction heat, have reduced billet weights for axle spindle forgings from 7½ to 5¼ pounds, saving up to ten tons of SAE 5132 bar stock a day in foundry of large automotive company. The heater delivers up to 720 scale-free billets per hour directly to extrusion presses. Forgings which are formed in one operation are featured by pit-free surface and superior fibre flow, and fatigue resistance is increased by 17% over hammered forgings. Elimination of scale plus even, penetrating heat permits forging to extremely close tolerances.

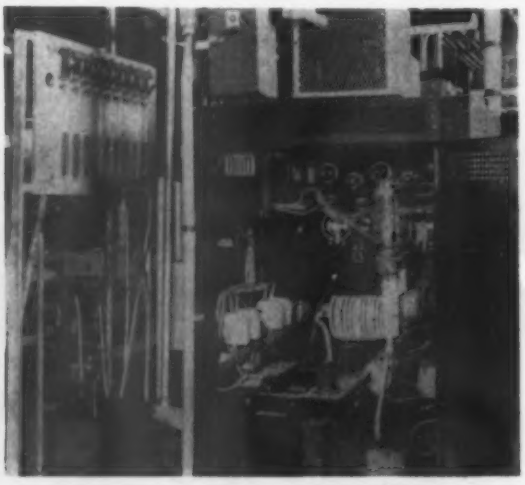
COST SAVING ITEM—269

Silicone Varnish Provides Uninterrupted Operation

The Clark Sanding Machine Co. was using grinder driven by a 5 hp, 440-volt motor protected with 10 hp thermal circuit breakers to rough out aluminum castings. With Class A insulation on the motor (cotton cloth and organic impregnating varnish), the breakers tripped out so often that the machine operated less than three-fourths of the time. It was impossible to mount larger motor. About two years ago the motor was rewound with Class H (glass cloth and silicone impregnating varnish) insulation, and equipped with 15 hp thermal breakers. Production has been continuous and uninterrupted since.

COST SAVING ITEM—270





Circuit Breaker Investment Saves $1500 a Year

Savings up to $1500 a year on an investment of $166 for five circuit breakers is reported by the Raytheon Manufacturing Co., Newton, Mass. Prior to installation of the five Type AB-I circuit breakers on induction furnaces, power failure at least once a year cost $1000 to $1500 in loss of material in process and lost time. The installation of the circuit breakers eliminated losses.

COST SAVING ITEM—271

Electrical



Electric Furnace Increases Production, Fewer Rejects

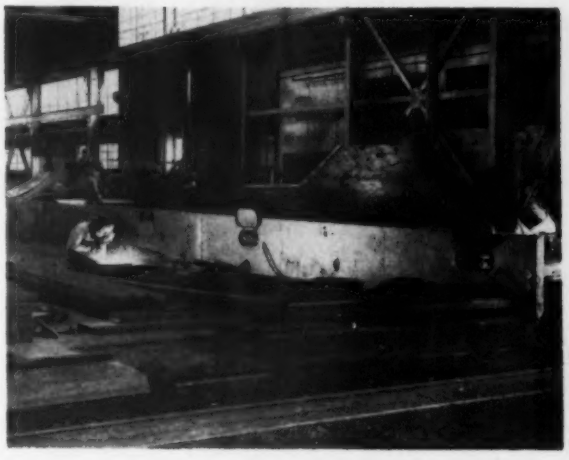
Illustration shows technician removing dental forgings from box-type electric furnace at the S. S. White Dental Manufacturing Co., Philadelphia. Use of this furnace and another similar to it, has resulted in faster production, fewer rejected pieces, and more uniform hardness of the tools, according to White Company engineers. Forgings are more uniform in hardness, facilitating machining and bending, resulting in fewer rejected pieces. The pieces average 85 to 90 Rockwell B.

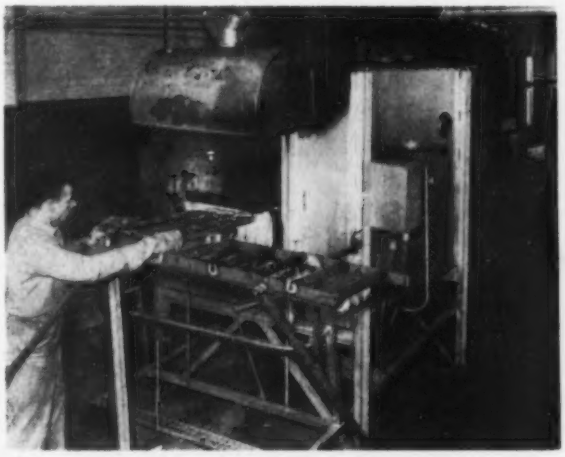
COST SAVING ITEM—272

Welding Installation Saving 30%

The Chicago Bridge and Iron Co. has mounted 16 electric arc welders in readily available batteries of eight as a means of saving floor space. Positioned on a special protective rack in the center of the shop, the welding machines are available from both sides. As this requires only one-half of the amount of cable normally needed to reach from one wall across the shop to the other, the company estimates an installation saving of approximately 30%.

COST SAVING ITEM—273





Electric Furnace Brazing Saves $10 per Hour

The Technical Metal Processing Inc., Cleveland, made a 66% saving in material for one of its customers by brazing pulley hubs instead of machining them. Previously hubs were machined from 2¾" dia. bar-stock blanks which weighed 1½ pounds. Electric furnace brazing made it possible to reduce the weight of the blanks to ½ pound and to speed up production by using stampings and screw machine parts. The hub assemblies are now copper-brazed in 50-kw box type furnace at the rate of 405 units per hour. Atmosphere gas converter supplies protective atmosphere so that the hubs emerge bright and clean. Cost of hubs has been reduced 2½¢ each, saving more than $10 an hour.

COST SAVING ITEM—274

(*Please turn to page* 400)

Materials and Components Present Many Opportunities to Make Cost Savings



Courtesy of Durez Plastics & Chemicals, Inc.

MORE than fifty factual user experience case histories in this section present an unusually interesting array of savings in time and materials, and savings by faster and improved production, reduction in rejects, materials substitution and new methods of production. These savings have been made by changing design, switching to another material, change in production methods, or the adoption of other time and labor saving operations involving methods, components or materials.

The case histories tell about the adoption of plastic-faced plywood for cabinet work, replacement of metal gears with nylon gears, use of free cutting metals, making complex parts by precision investment casting and powder metallurgy, use of tubing instead of bar stock, etc.

One of them cites how a manufacturer of water rollers used in presses for printing on tin, saved 23,000 pounds of stainless steel by stainless steel metal spraying. The former production involved the use of about 40 pounds of stainless steel per roller, but by using mild steel as a base and spraying it with .080" to .100" of stainless steel, only eight pounds of stainless were required per roller.

Another money-saving experience lies in the production of stainless steel rotors and stators by the precision-casting process instead of machining. As formerly produced, a total of twelve finishing operations were required. These have been cut to five and the cost of producing the parts has been reduced more than 50% by precision casting.

And the powder metallurgy process adopted by a clock manufacturer for the production of complex parts, one of which has 11 radii, made for savings as high as 50% as compared with the cost of machining the parts.

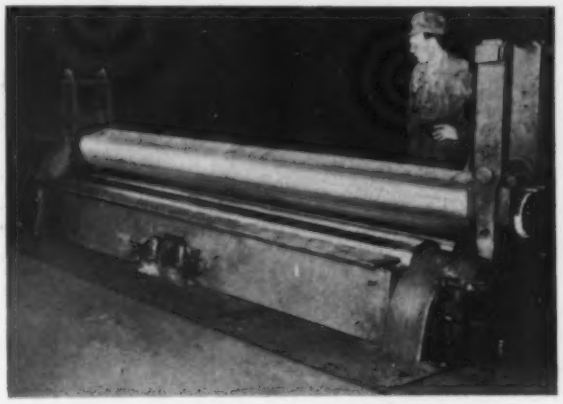
The use of free cutting screw stock enabled a manufacturer to increase the production of ½" hexagon tube nuts from 1050 to 1400 pieces per hour—an increase of one-third over production with material formerly used.

The ultimate-consumer benefit resulting from change in design and materials is vividly set forth in a brief case history about the use of reinforced plastic housing and wheel disc components in the assembly of an electric lawnmower. The retail price on the mower has been cut 20%, the reduction in price being attributed to the change involving the use of molded plastic parts.

Even fastenings—indispensables usually given little consideration, enter the cost saving picture as being the basis of outstanding savings in assembly costs and the creation of improved products.

These many case studies point out that materials and components are the basis of cost-reduction or purchase-for-profit analyses by purchasing-engineering-production, that can produce big savings and better products. They are evidence, as pointed out by Herbert Layport, Manager of Purchases, Wyman-Gordon Company, Worcester, Mass., in article in this issue about the cost saving operations of his department, that every requisition should be considered a challenge to make a saving.

Materials-Components



Special Cast Iron Rolls Save $6000

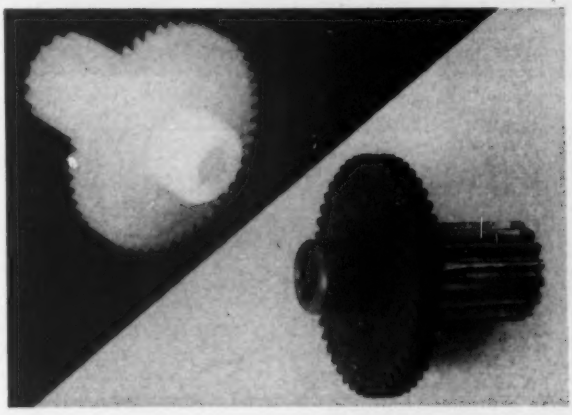
Forged bending rolls for a plate bending machine were replaced with special cast iron rolls by the Stearns-Roger Mfg., Denver, Colo. Savings in time and material are placed at $6000.

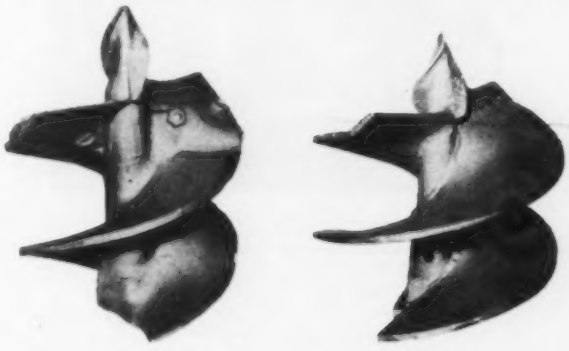
COST SAVING ITEM—275

Gear Costs Cut 63% With Nylon

Cost savings averaging 63% have been obtained on gears for the G-E oscillating fan by replacing three metal gears with those molded of nylon. Tests show that the nylon gears have excellent wear characteristics, and quieter operation. No machining operations are required on the nylon gears which come from the mold ready for service.

COST SAVING ITEM—276





Steel Castings Reduce Cost 40%

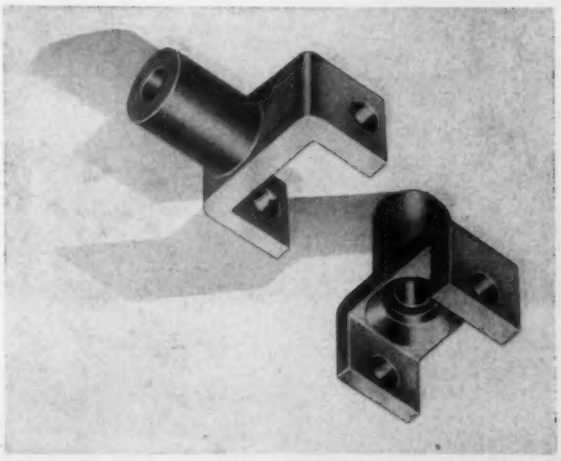
This is an earth and stone auger. Conversion to a foundry engineered steel casting cut the cost 40% for the complete assembly. Weight was reduced 4%, and casting has increased strength and greater durability.

COST SAVING ITEM—277

Metal Saved Four Operations

Illustration shows miter gear housing made for Massachusetts company, that was formerly machined from sand casting. It is now cast from beryllium copper 20C at considerable saving in metal. Four time-consuming operations were eliminated resulting in exceptional saving in labor costs.

COST SAVING ITEM—278



Materials-Components



Mower Handle Production Increased 25%

By switching to a special high strength, fast-flowing alloy which supplants silver solder in many applications, the Worthington Mower Co., Stroudsburg, Pa., has been able to increase production of power mower handles by some 25%, at the same time reducing material costs by a comparable amount. Preformed rings of the alloy of the same diameter as the tubing used in the assembly, make for maximum ease of operation especially when used in conjunction with the fixture shown in the photo. Parts are fluxed, alloy ring placed in position, and gas burners turned on by means of foot pedal. Unit is completed in matter of seconds.

COST SAVING ITEM—279

Heat Exchanger Production Less Costly

Aluminum is utilized by Aerofin Corporation of Syracuse, N. Y., in production of heat exchangers. The helical aluminum fin is so light in relation to its high heat conductivity that it is more economical in metal costs for a given unit of heat transferred. Durability of these stretched and compressed aluminum coils is demonstrated by the fact that they maintain a tight bond to the tube after more than eight years' service.

COST SAVING ITEM—280



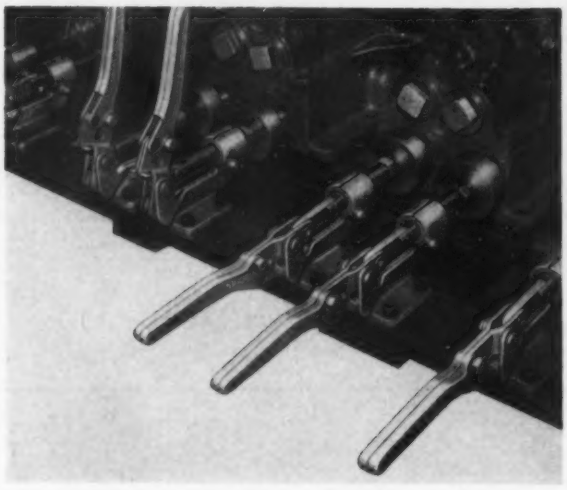


Plastic Faced Plywood Eliminates 3 Operations

Cabinet maker using plastic-faced plywood which does not have to be sanded and sealed and as a general rule requires only half as much paint, reports following comparison of material costs: White plastic faced plywood ¾" and painting 1 spray coat, total cost 55.5 cents a foot; alternate material plus sanding, priming and painting two coats, total cost 61¢ a foot. Labor time is also cut.

COST SAVING ITEM—281

Materials-Components



Clamp Investment Saves $5000 Per Shift Per Year

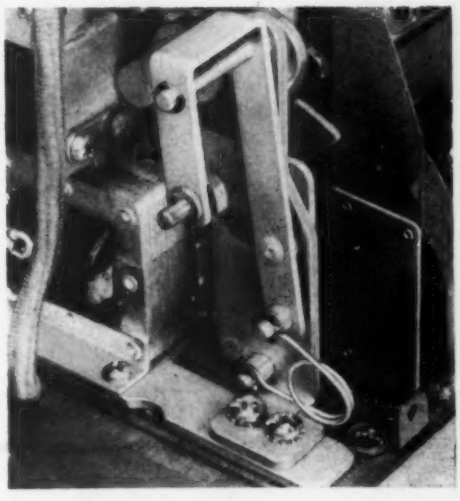
A saving of 12 manhours per shift is reported by Ross Operating Valve Co., with this fixture built around 24 toggle clamps. Fixture holds 4-way air operating valves during a "run in" operation. The clamp plungers are tipped with rubber grommets which seal exhaust and intake ports during the "run in" after which valves are torn down and inspected. Besides the saving in manhours the toggle clamps convert a tedious setup job into one quickly and accurately performed by less highly skilled labor.

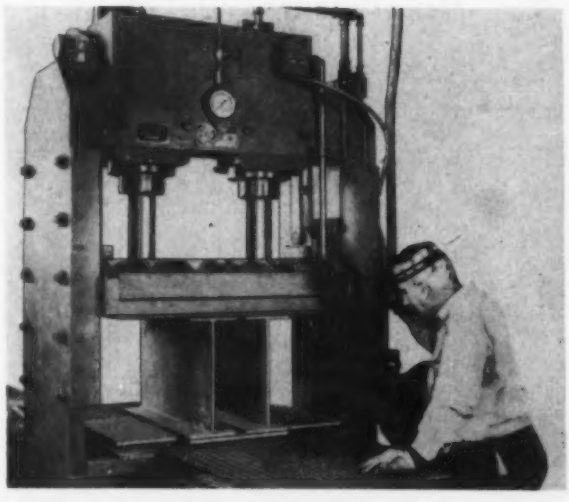
COST SAVING ITEM—282

Retaining Rings Eliminate 4 Tooling Operations

Illustration shows one assembly of dictating machine, as redesigned for five patented retaining rings. Old assembly required 4 hex head nuts, 4 washers, 4 shoulders, threading of 4 shafts. Clearance and end play specifications were necessary. Constant maintenance. New way with the special "E" retaining rings brought following savings: Nine seconds in assembly time, elimination of milling and threading operations, and elimination of maintenance. Total material and labor cost savings per 100 units 22½¢.

COST SAVING ITEM—283



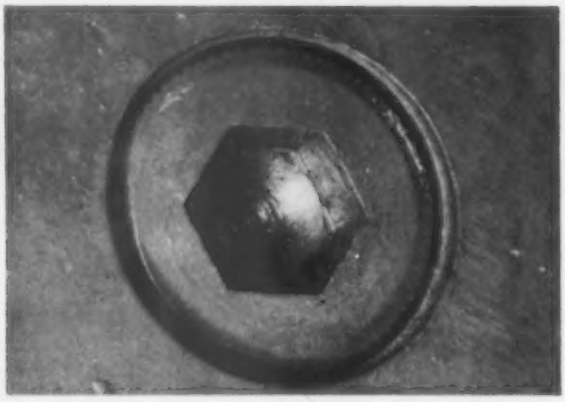


Press Paid for Itself in 62 Days

The Perkins Welding Co. of Buffalo, N. Y. makes auxiliary steel saddle tanks for big trailer trucks. By bending and forming tanks on a 2-cylinder 100 ton motor driven hydraulic press, time and production costs were cut. Also by forming stiffening ribs for the tanks on the press instead of using welded angle stiffeners, tanks were 60% stronger. Cost records show that the press paid for itself in just 62 days.

COST SAVING ITEM—284

Materials-Components



10% of Bolts Eliminated

The National Machinery Co., Tiffin, Ohio, eliminated 10% of bolts and drilling on line of forging presses (300 to 800 tons) by using high strength socket-head bolts. Total holding strength was increased, appearance was improved and safety promoted by getting rid of protruding bolt heads. Maintenance was facilitated. Picture shows bolt, 1" x 4½", countersunk in press clutch cover.

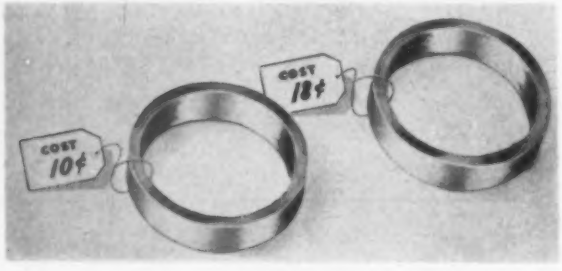
COST SAVING ITEM—285

Free Cutting Stainless Steel Tubing Saves on Tool Costs

Machining operations on valve stem for steam cleaner involve threading one end of ¼" O.D. tube, cutting two slots in the other end, plus drilling and tapping an additional transverse hole. Tough machining alloy required three taps and five drills for 100 pieces. A switch to an 18 Cr—8% Ni alloy with selenium added to improve machinability, resulted in one drill and one tap going the distance for 300 pieces. The part was made for a California manufacturer of cleaning equipment.

COST SAVING ITEM—286





Eight Cents Saving on Each Unit

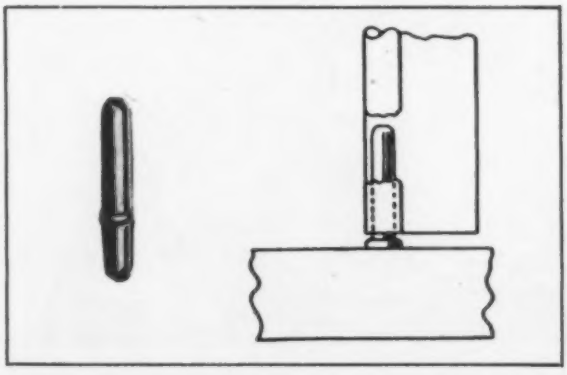
Valve seat inserts for high speed motors must be made to close tolerances. For these inserts Type 304 stainless tubing is used to provide heat resistance at temperatures up to 600° F., and resistance to corrosive attacks of high test gasoline. Parts made from the stainless tubing cost 10¢ each, as compared with 18¢ for parts machined from bar stock, before facing.

COST SAVING ITEM—287

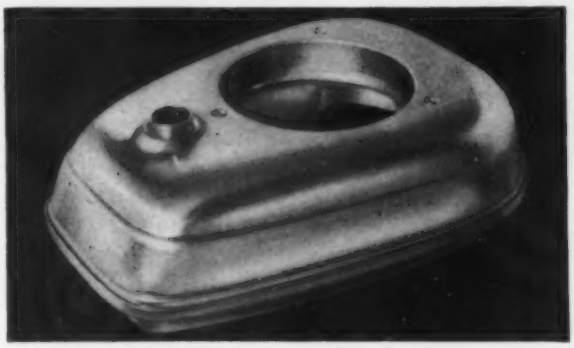
Swaged Pivot Pin Saves 50%

Pivot pin illustrated makes for saving of 50%. Instead of turning or heading pins from solid rod, they are now made by multi-swage method which automatically swages them from flat stock. Strength is not sacrificed and tolerances are accurately maintained. The big saving results from increased production rate and elimination of scrap.

COST SAVING ITEM—288



Materials-Components



Mass Brazing Cuts Costs

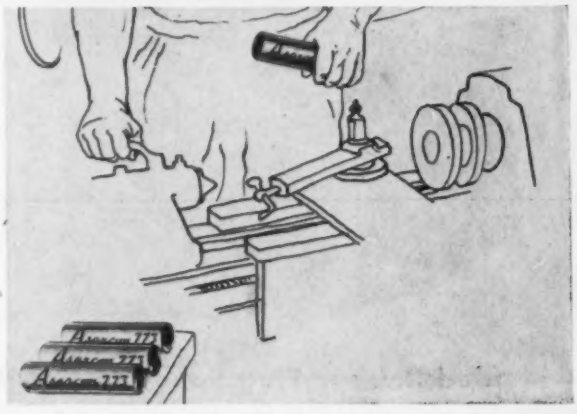
Illustration shows gas tank for outboard motors manufactured by Gale Products, Galesburg, Ill. The tanks are made of aluminum and cost less to fabricate because the material is readily formable. By employing a mass brazing technique, Gale eliminates expensive hand welding methods, and lowers finishing costs.

COST SAVING ITEM—289

60 Lbs. Bronze Bar Stock Saved on 134 Lb. Job

Shop needed ten 7″ lengths of 2″ solid bronze rod—134 pounds of bronze if bought in standard 13″ lengths. By specifying brand name rod (SAE 660), shop was able to purchase exactly the length needed—70″ plus 2″ for sawcuts, weighing only 74 lbs. The saving was 60 lbs.—over 44%.

COST SAVING ITEM—290





Assembly Savings Cut 50%

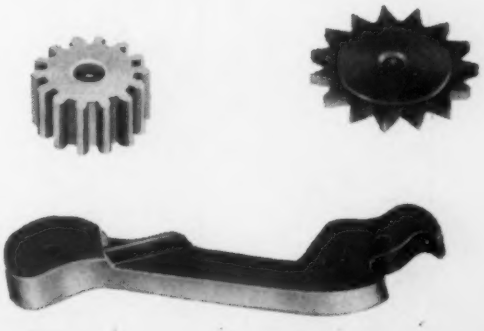
Study of assembly of vacuum cleaner showed the Lewyt Corporation where 12 tapping operations could be eliminated by the use of self-tapping screws. The company reports an assembly saving of 50% by their use.

COST SAVING ITEM—291

Powder Metal Saves 50% on Clock Parts

Average economies by powder metal processing as against machining run as high as 50% on these parts made by the Lux Clock Manufacturing Co., Waterbury, Conn. These parts include winding pinion for automotive clock movement, crown wheel for small clock movement, and alarm-actuating mechanism. Saving is higher on the latter. This piece has 11 radii, two through-holes, and two or three different levels.

COST SAVING ITEM—292



Materials-Components



Plastic Grommet Saves Assembly Time

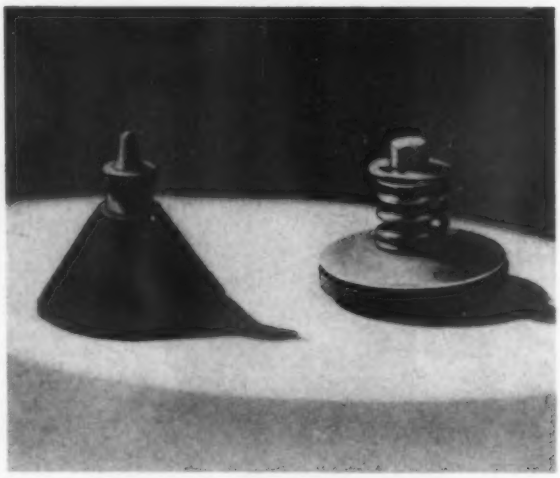
Four aircraft manufacturers were having breakage and assembly troubles with molded cable grommets inserted in bulkheads and fire walls. Then special laminated plastic grommet that springs out and holds tight was made. Fine weave canvas laminated thermosetting plastic rolled tubing was cut into rings, grooved and beveled. Diagonal slit released the built-in tension of the tough ring. Result: The grommet can be easily compressed, inserted by hand. Once in, it springs outward, tight against the edge of the hole—cushioning, insulating, saving assembly time.

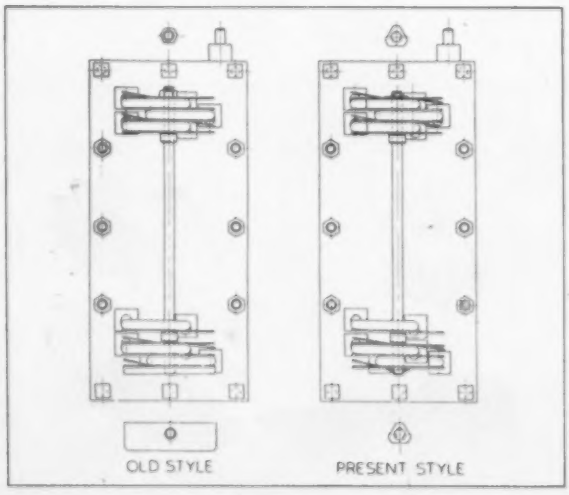
COST SAVING ITEM—293

Molded Rubber Plug Saves 7¢ Per Unit

The molded rubber plug at left replaced the six-part metal and rubber washer plug shown at right, at a saving of over 7¢ per unit. The plug, made for the Easy Washing Machine Co., simplified assembly, and increased operating efficiency of unit. It eliminated many assembly operations, multiple inventory, part losses, waste, rejects, and servicing costs.

COST SAVING ITEM—294



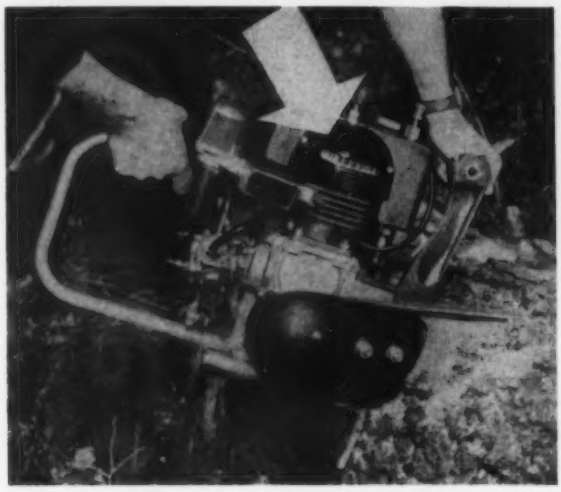


52% Cut in Material and Assembly Costs

The Grinnell Company, Providence, R. I., reports that the use of triangular self locking retaining rings has enabled them to cut down on the use of scarce raw materials in one of their unit heaters. A threaded cast iron tube rest which was used to support a thermal tube tie rod at the bottom and a jam nut at the top have been replaced by a plain rod and two rings. The rings require no grooves, simply being pushed into place. In addition to material conservation, labor assembly time has been cut considerably. The economies made possible have resulted in a 52% cut in material and assembly costs.

COST SAVING ITEM—295

Materials-Components



Critical Alloy Replaced Costs Reduced 75%

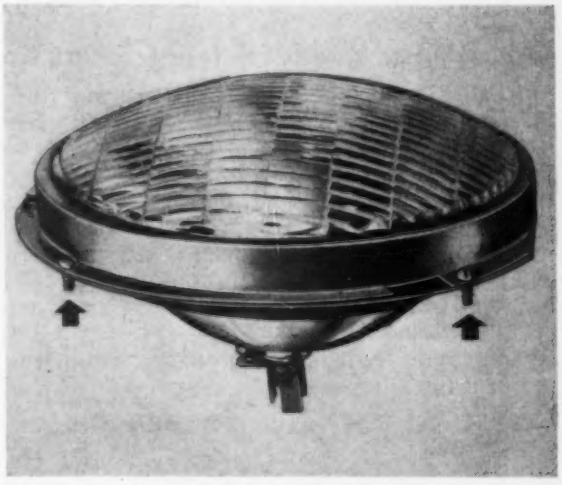
Costs have been reduced 75% on cylinder shields and handles for a one-man portable tree saw by molding the parts from rubber-phenolic plastic. Formerly cast from magnesium alloy, parts prices ran high because of high material costs and machining and painting operations. The rubber-phenolic parts take the heat of the application and give excellent service because of their resistance to impact—5 to 10 times that of conventional phenolics.

COST SAVING ITEM—296

Spots a Saving of 1¢ Per Unit

When the See-Mor Lamp Co., Cincinnati, Ohio, used machine screws to fasten sealed beam headlight adapters to lamps, rejects piled up because screws stripped out of the sheet metal, and tap breakage also became a serious problem. Switching to self-tapping screws, the necessity for tapping was eliminated and stripping was overcome by their superior holding power. The company reported that by using the self-tapping screws a saving of $1.72 was made on every thousand screws driven—or 1¢ per lamp.

COST SAVING ITEM—297



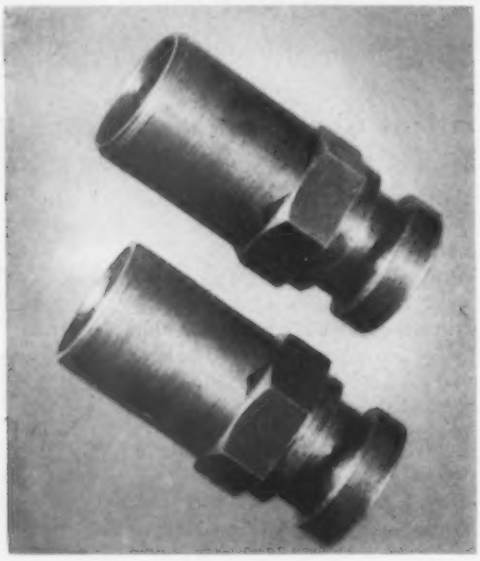


Casting-Cost One Third of Weldment

Chain drive housing casting on right cost only one third that of the weldment on the left.

COST SAVING ITEM—298

Materials-Components



Free Machining Steel Increases Production 50%

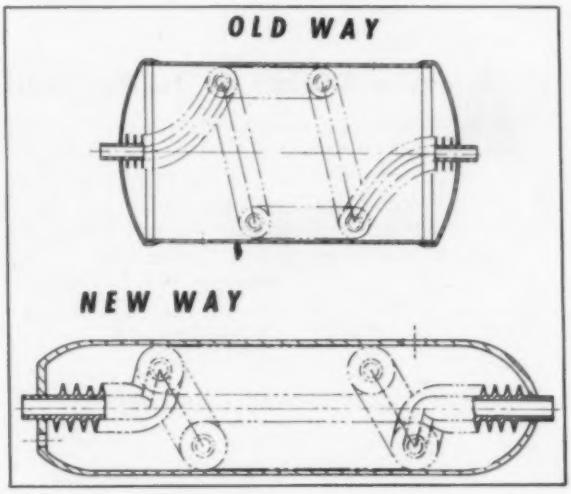
Part is 5/8" hexagon hose end blank. Operations: forming, drilling, reaming. Use of free machining stock increased output from 420 to 630 per hour, based on 70% efficiency. Results: Increase in production rate 50%; increase in surface feet and spindle speed, 31.8%; increase in tool feed, 15.9%.

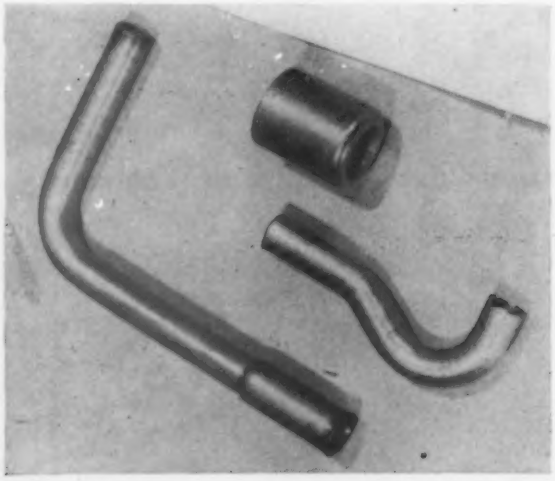
COST SAVING ITEM—299

Operations Reduced from Seven to Five

Production of this heat exchanger formerly required three components—steel tube shell, finned tube and cap blanks, and assembly took seven operations. New and less costly production requires only a seamless copper tube and finned tube. Fabrication operations are reduced from seven to five, namely, holes punched in shell, coil finned tube on 2-inch centers, center, cut off and strip tails of coil, assemble coil into shell and spin both ends. New production features fewer parts and operations, and no shell joints—reducing leakage possibility, giving better gas distribution, and more efficient use of condensing surface.

COST SAVING ITEM—300



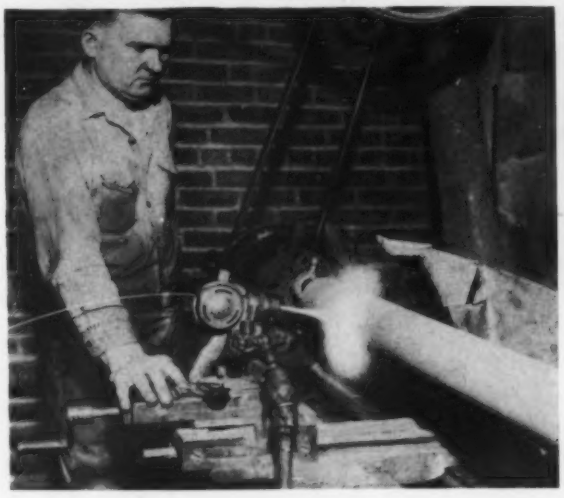


S. S. Tubing Eliminates 6 Operations

Job: Producing parts for table model water coolers. Problem: Unit costs were out of line and rejects were piling up on the floor when part shown at right was made from sheet. Seven operations were required on each part. Silver soldering of finished units was practically impossible. The solution: Now the parts are fabricated in one reverse bending from Type 304 stainless tubing. Six operations on small part have been eliminated and soldering of assemblies is a snap. Though tubing costs more than sheet, finished parts cost less per unit.

COST SAVING ITEM—301

Materials-Components



Saves 23,000 Lbs. of Stainless Steel

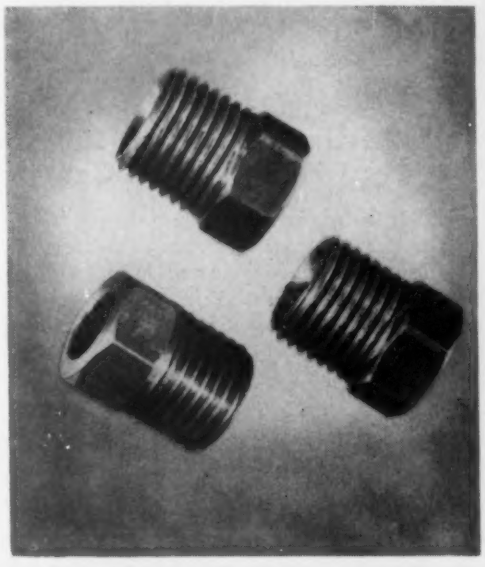
Manufacturer making water-roller used in printing presses for printing on tin, saved 23,000 lbs of stainless steel in one year, on one metallizing application. Water rollers being subject to corrosion, were formerly made of stainless steel—about 40 lbs. being required for each. Utilizing metallizing, mild steel can be used for the base and .080″ to .100″ of stainless steel sprayed on to provide protection against corrosion. About 8 lbs. of stainless steel are required for each roller, saving about 32 lbs. per roller. Total savings in stainless steel over a year's time exceed 11 tons.

COST SAVING ITEM—302

Production Increased 33 1/3%

Part is ½″ hexagon tube nut. Operations are forming, drilling, threading, reaming, cut-off. By use of freer cutting screw stock, output was increased from 1050 to 1400 pieces based on 70% machine efficiency. Increase in production rate was 33⅓%; increase in surface feet and spindle feed, 13.6%; increase in drill feeds 25.4%; increase in drill surface speed 13.6%.

COST SAVING ITEM—303



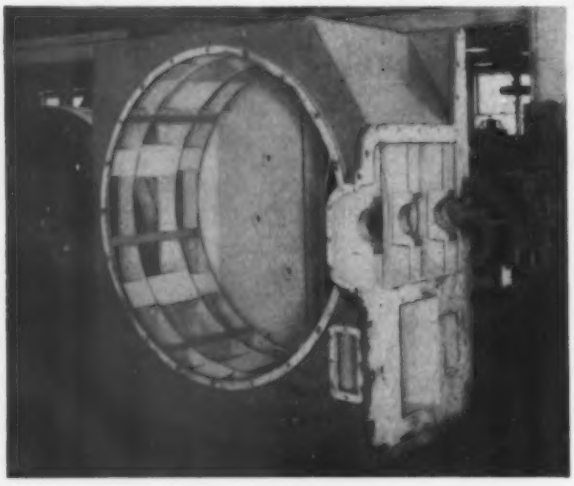


Sand Castings Increase Valve Life 10 Times

A big name refrigeration compressor company redesigned equipment to increase power rating by 33%. This called for improved performance of suction and discharge valves, 3- to 4-inch diameter discs about ¼″ thick with number of closely controlled radial slots. Valves were formerly made in cast iron. Frequent breakage in service and excessive breakage called for change for the new compressors. Valves were then cast of air-hardening tool steel featuring abrasion resistance and non-deforming properties during heat treatment. Slots in casting were held to close tolerance needed. Machining was avoided. Valve gave improved performance and its life was increased more than ten times.

COST SAVING ITEM—304

Materials-Components



Cast Blower Housing $222 Cheaper

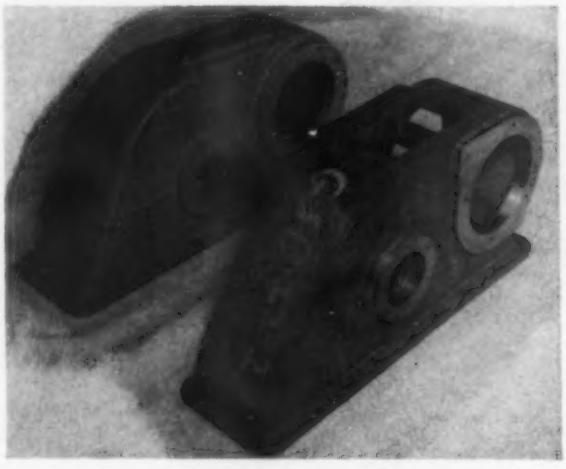
In production test, use of casting for blower housing illustrated, eliminated assembling and handling 124 separate pieces. Machining cost of welded assembly is reported as being 77% higher than that of the casting, resulting in a $222 balance in favor of production by casting.

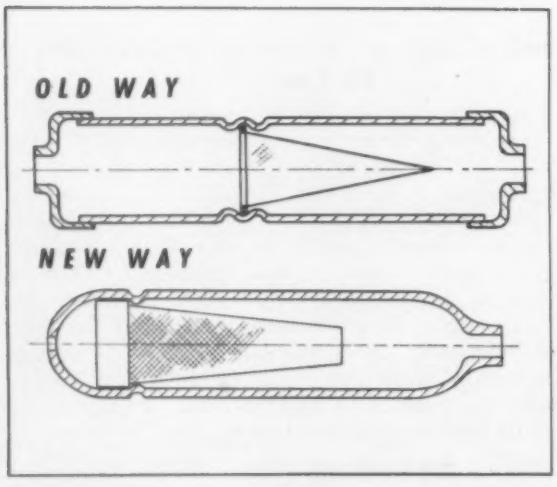
COST SAVING ITEM—305

Casting Results in 50% Lower Production Cost

Illustration shows housing knee. Gray iron casting on the left eliminated series of individual parts needed in comparable weldment at right. Consequent savings in torch cutting, machining, forming and welding operations resulted in a 50% lower production cost for the casting.

COST SAVING ITEM—306





Fewer Parts, Fewer Operations

Illustration shows old way and new way of fabricating a strainer spun to capillary tube size one end—combination beading assembly and spinning. Formerly three separate pieces were required for this strainer, and five fabricating operations were necessary. By utilizing spun end process only two materials are required: seamless copper tube and the screen unit. Only two fabricating operations are used: bead end of tube for screen retainer unit and spin both ends. Since there are no joints there is less possibility of leakage.

COST SAVING ITEM—307

Materials-Components



Silicone Seals Have Many Times Life of Organic Rings

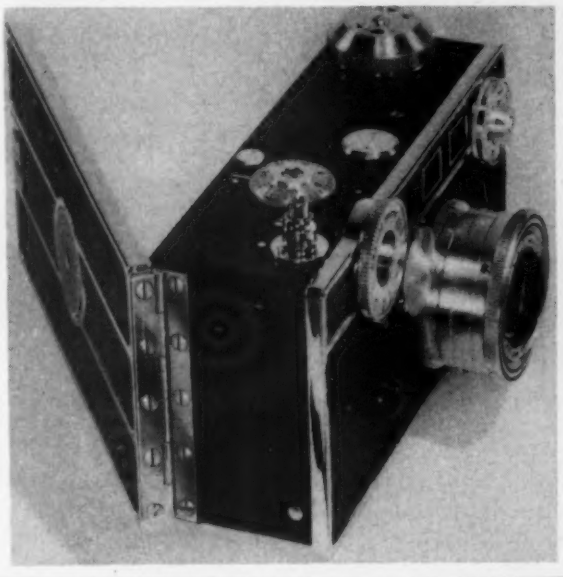
Manufacturer uses O-rings of silicone rubber to seal both the lower cylinder liners and water ports of diesel-electric locomotives. Rings of organic rubber hardened, permitting water to seep through into the oil, causing foaming, oil dilution and excessive bearing wear. Silicone rubber seals give many times the life of the organic rings previously used. Maintenance costs are reduced substantially because the engine has to be almost completely disassembled every time the O-rings need replacing.

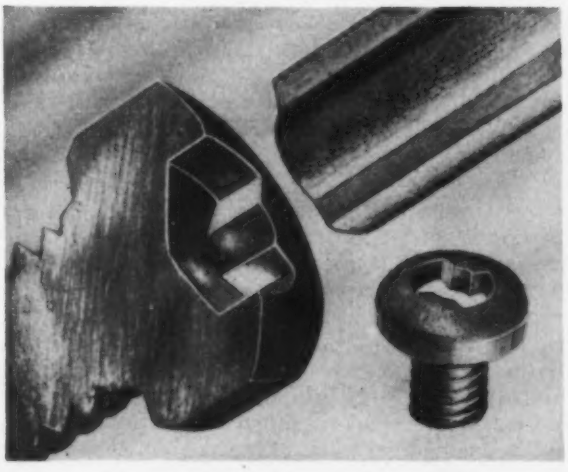
COST SAVING ITEM—308

Switch to SS Cuts Camera Screw Cost 75%

Little fastenings account for big savings in the case of this Argus C-3 camera. Formerly the ten small screws hinging the cover were brass, chrome plated. By switching to stainless steel screws, cost of these fastenings was cut 75%.

COST SAVING ITEM—309





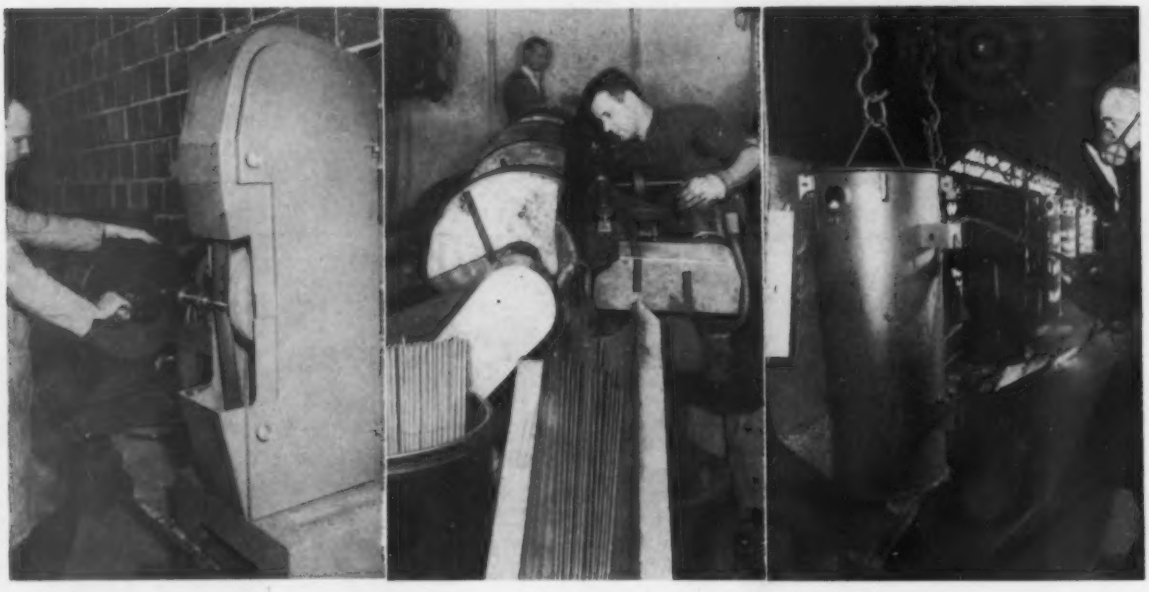
Production Increased 30%

Refrigerator manufacturer in Midwest stepped up production 30% and eliminated cabinet damage in assembly, by use of clutch head screws and Type "A" bits. The straight wall clutch recess matched by Type "A" bit eliminates tendency of driver to "ride out", thus obviating damage due to driver slippage, and reduces operator fatigue.

COST SAVING ITEM—310

(*Please turn to page* 428)

New Methods and Materials Open Way For Lower Finishing Costs



IN general, all manufacturers have finishing problems of one kind or another. Just as there is variety in products, so is there variety in finishing requirements, finishing materials, and finishing procedures for raw materials, components and completed products. All of which means that the manufacturer is ever faced with the spectre of costs.

The cost saving case histories in this section, though limited in number, include such subjects as hot spray painting, power brushing, flash-primer spray-on filler operation, resin wash primer that cut production time two-thirds, infrared drying, silicone paints, chemically treated sheet steel that holds coating, mechanical deflashing of thermosetting molded parts, and varied other finishing procedures.

A manufacturer using the hot spray method of painting, reports savings in paint and labor amounting to $250. a week. In this case the paint saving is placed at $12.50 per drum; production was increased along with a better finish.

In another instance, the manufacturer of hospital equipment was faced with the problem of long finishing time on large castings and inadequate oven space. Resorting to the use of a flash primer and a spray-on filler he was able to eliminate the need for a surfacer as well as time-consuming brushing and sanding operations. As a result, finishing department operations were cut from eight to four, and a job that originally took eleven hours per casting was reduced to only one hour.

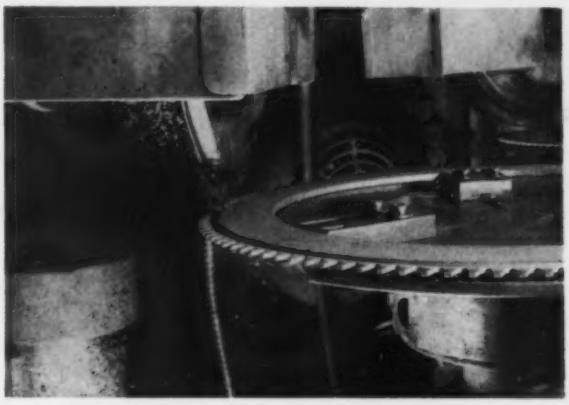
Drying of materials or coated products of one kind or another involves time and labor costs in many industries that combine for sizable cost figures. By the installation of an infrared drying system for leather drying and processing, a Philadelphia manufacturer was able to transfer eleven employees to other departments that needed them. Before the installation of the infrared equipment, 24 hours time was consumed in preparing and air-drying hides. The whole operation is now done in a comparatively few minutes.

The use of a zinc coated chemically treated sheet metal that holds applied coatings, has enabled a Cleveland manufacturer of fluorescent fixture blanks, to effect savings of five to seven percent in total production costs. He has found that the excellent painting surface of the metal has practically eliminated the reject problem.

The Boeing Airplane Company paid a premium for highly polished aluminum and was suffering losses account rejects and final repolishing. However, by application of a strippable coating which is sprayed on sheet stock and kept on during handling and forming operations right down to final inspection when it is easily stripped off, rejects have been minimized and the need for repolishing practically eliminated.

Additional product finishing stories that reflect savings, cover such subjects as backstand grinding, barrel finishing of thermosetting molded plastic parts, the use of a wash primer based on vinylite resins, power brushing, and other methods.

Product Finishing



Deburs Clutch Discs Three Times As Fast

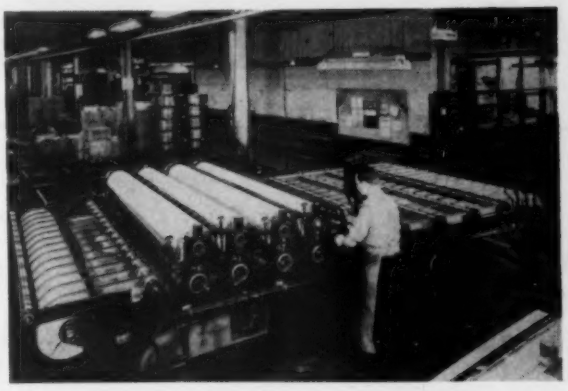
Five-head rotary automatic is used by manufacturer to mechanize the brushing of clutch disc teeth. Each brush is powered by a 5 hp motor and rotates at 1750 rpm. Four of the stations brush across the teeth as shown in illustration. Fifth station brushes into teeth. Output is tripled. Every disc is thoroughly and uniformly deburred. When clutches are assembled and tested, they operate smoothly and efficiently.

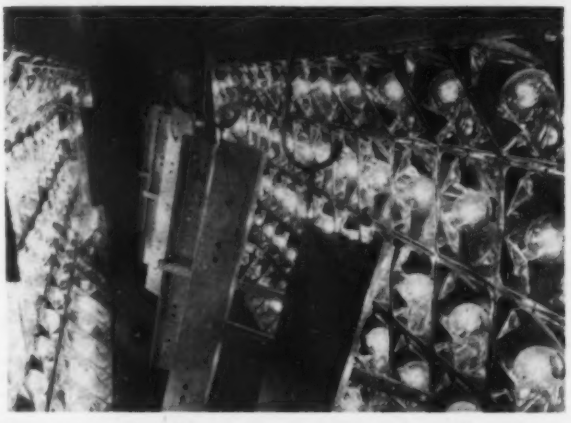
COST SAVING ITEM—311

Power Brushing Unit Reduces Direct Labor 60%

Installation of a power brushing unit eliminated the need for four hand laborers in cleaning and wiping 8′ x 10′ glass plates prior to silvering in the manufacture of mirrors. Now two men are required merely to load the machine which performs the operations of scrubbing and rinsing. More uniform cleaning is also achieved and it is no longer necessary to rewash certain plates.

COST SAVING ITEM—312





Painted Tractor Parts Dried in Few Minutes

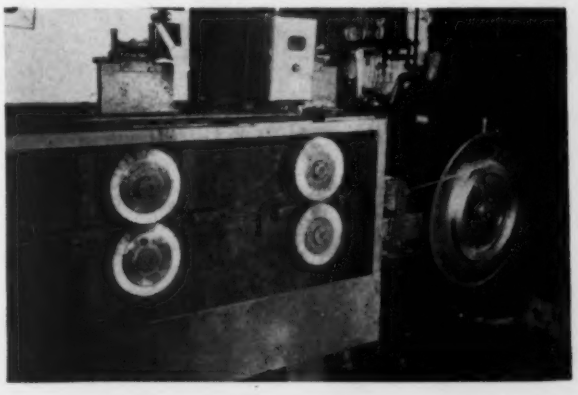
Old method of air drying painted tractor parts at the Bready Tractor and Implement Co., Solon, Ohio, used to take eight hours. Infrared oven 11′ long was installed. Various size parts are dried in the oven, the longest baking time being 20 minutes. The oven has eliminated a bottleneck, and company has been able to assign two of the three men formerly required to paint and stack to more productive jobs.

COST SAVING ITEM—313

Power Brushes Do Two Jobs

Manufacturer formerly used machines having six brushing heads for cleaning and finishing hardened high-carbon steel razor blade strip. By new techniques, the job has been reduced to a two station automatic machine which removes heat treat scale, and prepares the strip surface for name etching. The strip is pulled through the brushes at 50 ft. a minute, brushes rotating at 3450 rpm, coming out uniformly clean and micro-smooth.

COST SAVING ITEM—314



Product Finishing



Baking Time Cut from 20 to 5 Minutes

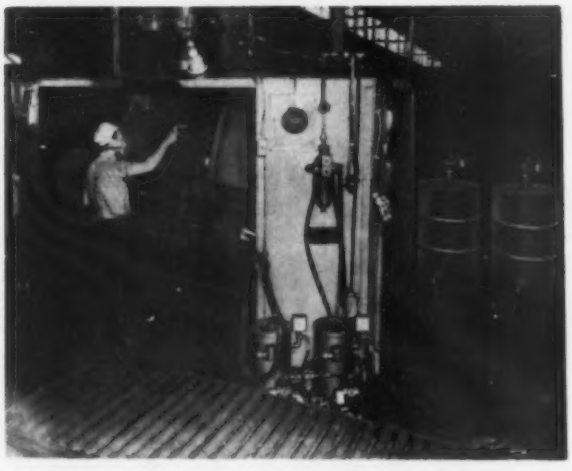
Installation of industrial, infra-red heat lamps in ceiling suspended double paint drying oven at the White Motor Co., Cleveland, Ohio, resulted in cutting baking time from 20 minutes required by previous system, to five minutes. Only a 75 ft. overhead space is needed for the installation, thus saving floor area and permitting compact, continuous conveyance of work. With this method of paint drying, quality control is easier. Savings in materials and increased operation efficiencies have also resulted.

COST SAVING ITEM—315

Hot Spray Process Saves $250 Weekly

Manufacturer of machinery using hot spray method of painting reports savings in paint and labor amounting to $250 per week. Previously spraying was from drum of cold paint, using 90 lbs. air pressure, and mixture four parts of enamel to one of reducer, and production was 35 units from drum. Production has been stepped up to 40 units by means of paint heater, the mixture being eight parts of enamel to one of reducer, and air pressure was reduced to 42 lbs. Paint saving is placed at $12.50 per drum. Using 20 drums per week, savings amount to $13,000 annually. Also, better finish is obtained.

COST SAVING ITEM—316



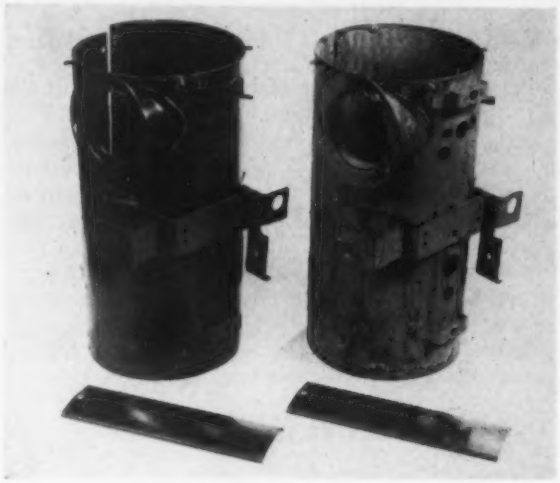


Canopy Beams Finished 100% Faster

Aluminum canopy beams for Lockheed fighters are finished 100% faster with new backstand method of grinding. The Linmold Co., Compton, Calif., reports that the method has eliminated one entire grinding operation. Flash and gates on aluminum castings are now cut close with a metal saw, then ground smooth in a single step. Snagging wheels and set-up wheels are no longer needed. Grinding time is cut in half.

COST SAVING ITEM—317

Product Finishing



Modified Silicone Paint Proves Superior

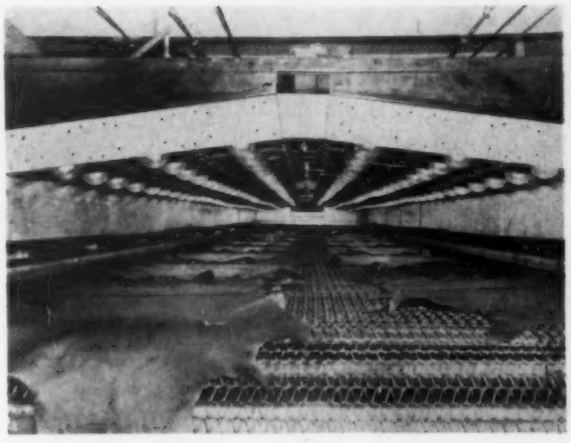
To test the effectiveness of modified silicone paint as a protective coating for Army Ordnance space heaters, Midland Industrial Finishes Co. of Waukegan, Wis., coated one heater shell with a high quality organic finish and the other with a modified silicone olive drab. The organic finish (right) was sprayed on and baked 45 minutes at 250 deg. F. The modified silicone was sprayed and baked 30 minutes at 400 deg. F. Both shells were heated at 500 deg. F. for four hours and subjected to salt spray. The organic painted shell is shown after 100 hours' exposure to salt spray; the silicone painted shell after 300 hours.

COST SAVING ITEM—318

Eleven People Transferred

Installation of infrared for leather drying and processing at the Wm. Amer Co., Philadelphia, has materially speeded drying, and permitted the transfer of eleven people that previously worked in that department. Also, 25% less floor space is being used with the infrared dryer than was previously required. In this case the dryer is a 95' conveyor line divided into three sections with an automatic spray system ahead of each oven section for applying a water soluble lacquer on the hides. Before the installation of the IR equipment, 24 hours time was required for preparing and drying the hides by natural air-dry. The whole operation is now done in a few minutes. The oven is equipped with blower system for removal of odors, fumes, etc.

COST SAVING ITEM—319





Strippable Coating Saves Extra Repolishing

The Boeing Airplane Co. found that mars and scratches on aluminum airplane skin cut air speed as much as 20 mph. They paid a premium for highly polished aluminum. There were losses incident to rejects and final repolishing. Company is now using strippable coating which is sprayed on sheet stock and kept on during handling and forming operations right down to final inspection when it is easily stripped off. The strippable coating saves extra repolishing and cuts rejects as it protects the finish of expensive metal.

COST SAVING ITEM—320

Product Finishing



Job Reduced from 11 Hours to 1 Hour

Well known manufacturer of hospital equipment had two big problems in the finishing of large casting. Each casting required 11 hours' finishing time, and second, oven space was insufficient for speedy production because of baking time required by materials being used. A finishing specialist recommended use of a flash primer and a spray-on filler. These eliminated the need for a surfacer as well as time-consuming brushing and sanding operations. Separate finishing department operations were cut from 8 to 4. A job that originally took 11 hours per casting was reduced to only 1 hour. Manufacturer is saving thousands of dollars a year.

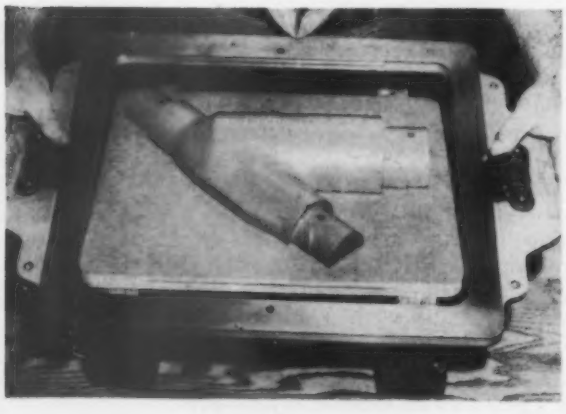
COST SAVING ITEM—321

Blast Cleaning Table Cuts Costs $5556 a Year

By installation of the blast cleaning table shown in illustration, the Anstice Co., Rochester, N. Y. has cut labor costs by $2540 a year—even though tonnage has been increased. In addition abrasive costs have been cut by $3016 a year by use of a grit that can be used for up to 300 passes.

COST SAVING ITEM—322





Resin Coated Plywood Reduces Matchplate Costs 84%

Foundry work is lightened and simplified by new type steel frame for use with pattern mounting boards, or matchplates, made of plywood surfaced with a sheet of cellulose fiber impregnated with phenolic resins. Use of this special plywood which is highly resistant to water absorption and abrasion is said to have reduced matchplate costs by about 84% for The Cooper Alloy Foundry Co., Hillside, N. J. To extend the life of these mounting boards and facilitate quick changes of patterns, Cooper Alloy devised a metal frame in which 1, 2, 3 or 4 matchplates can be located into position with four twists of a screwdriver. The mounting boards serve for as many molds as do metal matchplates because the molding flask edges ride on the steel-faced frame instead of on the matchplate itself.

COST SAVING ITEM—323

Product Finishing



Cut Plastics Finishing Time 90%

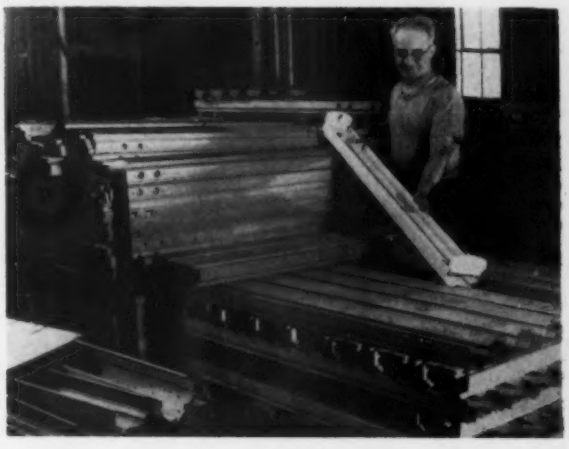
Installation of mechanical deflasher for deflashing thermosetting molded plastic parts with a brittle flash, has meant a 90% cut in finishing time at Smith & Stone, Ltd., Georgetown, Ontario. The two cu. ft. capacity barrel in which non-abrading pellets are thrown on the work by an airless rotating bladed overhead wheel, requires only a fraction of one worker's daily time. Typical example is a socket shell which workers formerly deflashed manually at the rate of 1333 per hour. Mechanical deflashing upped production to 50,000 per hour.

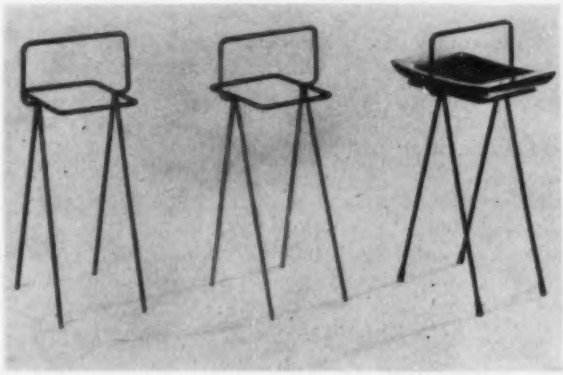
COST SAVING ITEM—324

5% to 7% Saving on Total Production Costs

Estimated savings of 5% to 7% in total production costs are estimated by the Holdenline Co., Scranton Road, Cleveland, as a result of using zinc-coated, chemically treated sheet steel that takes and holds paints, lacquers and synthetic enamels, in the production of fluorescent fixture blanks. By running four to five times normal runs, only one die-set-up is necessary, saving on set-up time of previous procedure. Blanks are painted as needed to fill orders, eliminating hazard of damage to painted surfaces in storage, and cleaning before shipping. Excellent painting surface of metal has practically eliminated reject problem.

COST SAVING ITEM—325



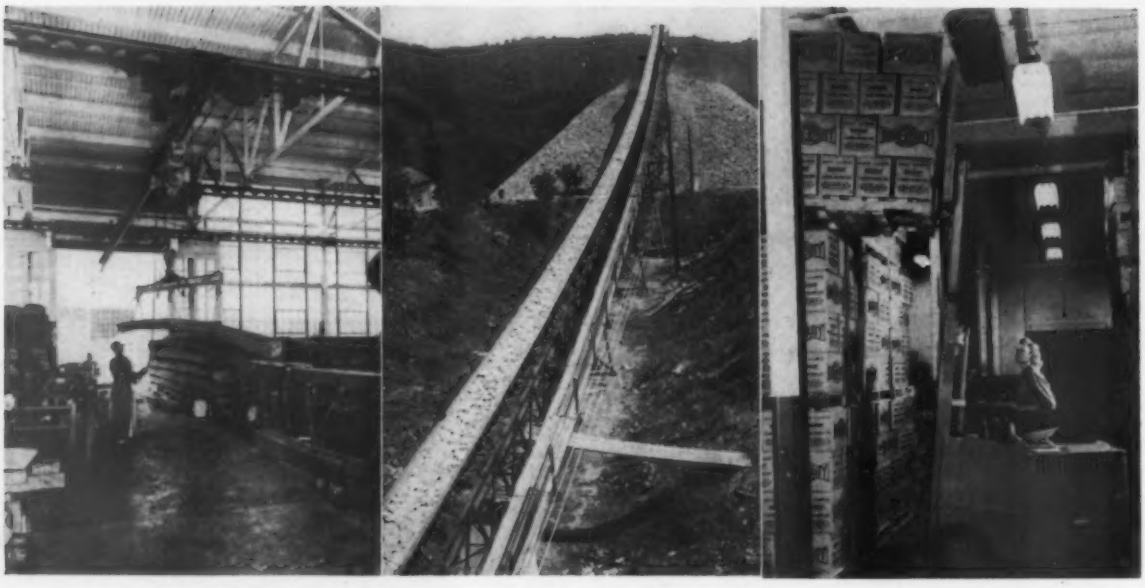


Wash Primer Lowers Production Costs

Dipping a wrought iron garden tray stand into wash primer based on Vinylite resins, manufacturer saved two-thirds of the production time and eliminated two steps in processing from raw metal to primed metal to finished stand. The resin-base coating provided improved base for the flat black top coat, reduced the number of rejects per order, and extended the life of the garden stands. The primer is applied by dipping, brush or spray and dries in less than 30 minutes under normal conditions.

COST SAVING ITEM—326

Materials Handling Costs Cut 50% and More with Modern Equipment



MATERIALS handling represents one of the most vulnerable spots in industry for effecting big savings—savings by substituting mechanical force for brawn and sweat, by better utilization of manufacturing and storage areas, by substituting yardage for shovelfulls, tonnage for poundage in the handling of packaged products, by more prompt loading and unloading of trucks and railroad cars, and by less costly supplying of production and assembly lines.

The cost of materials handling in the average plant is variously estimated at 20 to 30 percent of the manufacturing cost. Thus materials handling is a challenge to do the job cheaper. Reports indicate that handling costs have been cut 50% and more in some plants. That it is an important factor in end costs is obvious, for the customer must pay for the costs of handling regardless of where they are incurred. From the standpoint of the purchasing agent, it is obvious that the supplier using modern material handling methods is in best position to give best price and best service.

Miracles in cost reduction are being performed by conveyor belts, by fork trucks and the varied attachments that have been devised for handling different materials, by derricks, cranes, elevators, pneumatic tube systems, overhead handling systems, palletizing, and the diversified assortment of smaller handling equipment.

However, it cannot be too strongly stressed that solving material handling costs does not lie in the mere purchase of new equipment. For greatest effectiveness material handling equipment should be adapted to the job at hand, based on types of materials to be handled, job and storage requirements, floor strengths, aisle widths, shipping and receiving plant layout and other factors.

In this section, numerous case histories are presented telling how new equipment and methods have radically cut costs, released men for other duties, and increased both storage and manufacturing areas.

One of these case histories tells how a Southern cotton warehouse cut cotton handling costs 71% by the installation of fork lift trucks equipped to handle cotton. The job of loading a 100-bale car which formerly required 22½ man-hours, is now done in an average of 35 man-minutes; inbound bale warehousing costs were cut 87%, and unloading costs were cut 90%.

In another case, that of an Illinois electric company, sheet steel handling time has been cut 37½% by the installation of a tramrail system which has resulted in a saving of 12 man-hours for every 70,000 lb. car of sheet steel unloaded.

One of the unusually interesting cases tells about a cleated belt which rocks hot processed canned foods, cutting the cooling time of 18 to 48 hours down to five minutes.

The 37 material handling case histories in this section present a general cost-reduction story with modern materials handling equipment, of more than casual interest.

Materials Handling



800% Increase in Manual Effectiveness

Replacement of eight sanders and flanking tables, by four micro-grinders equipped with flanking screw propelled portable elevating tables in the Formica Company's plant at Cincinnati, Ohio, resulted in following positioning advantages: (a) Four men now produce as much as 16 men formerly did; (b) sheets are handled only one-third as much as formerly; (c) there has been a 200% increase in production; and, (d) floor space utilization per operation has been cut down to 1.8 of former requirements. Sixty percent of these benefits are attributed to the use of the portable elevators.

COST SAVING ITEM—327

Overhead Crane System Increases Floor Capacity 50%

Illustration shows overhead crane system in plant of International Harvester's West Pullman Works, Chicago, for handling bar stock. Crane is cab operated and travel speed is 500 FPM. Grab is of motor driven bar stock type, with capacity of 4,000 lbs. Hoist is conventional twin-hook unit and operates at lifting speed of 14 FPM with capacity of 6,000 lbs. Hoist can be rotated 90 degrees. Exposed electrification is all 55 volts, minimizing accident hazards. This system has permitted installation of approximately 50% more automatic machines in the same space as when serviced by conventional truck methods. The unit is handling an average of 75,000 lbs. of bar stock per 8-hr. day. Three men are now performing the work that formerly required nine men. Machine down time account shortage of raw stock is virtually eliminated.

COST SAVING ITEM—328



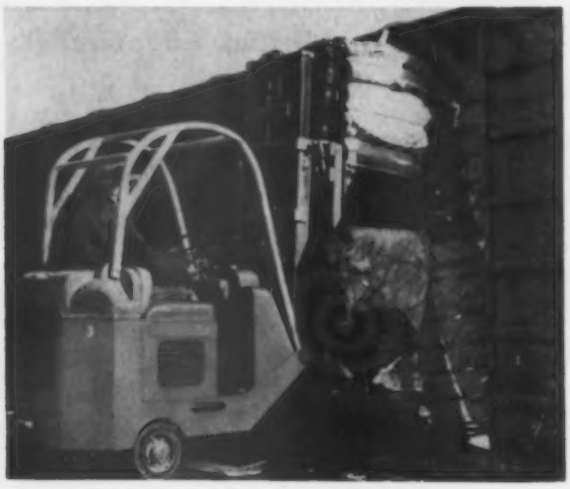


Shipping Time and Manpower Cut in Half

With the installation of an electrically operated hoist, a Chicago manufacturer has reduced shipping time and labor materials handling by 50%. Normal operations require stacking 250 lb. kegs of machined products prior to shipping, and during loading. Rated to lift a 250 lb. load 40 ft. per minute, the hoist expedited the operations and added substantially to storage height possibilities. Hoist operates with push-button control, and provides wide latitude of side pull.

COST SAVING ITEM—329

Materials Handling



71% Cut in Cotton Handling Costs

Handling costs represent 80% of over-all costs of cotton warehousing. After study, Moody Compress & Warehouse Co., Galveston, decided to streamline handling methods. Company installed 23 fork lift trucks equipped to handle cotton. Here are the results: Unloading costs were cut 90% bringing handling cost per bale down to ¾¢,—carload of 110 bales is handled in maximum of 45 man-minutes. Costs of weighing and sampling were cut more than 50%; inbound bale warehousing costs were cut 87%, and carloading costs were cut nearly 98%. Loading a 100-bale car formerly required 22½ hours by manual handling. Truck equipped with long-reach cotton clamp loads a car on an average of 35 man-minutes.

COST SAVING ITEM—330

80 Hours of Time Saved Weekly

Tramrail crane was installed by the Acme Box Co., Baltimore, Md., box manufacturers. In 13 weeks the entire cost of crane, runways and erection was absorbed because of the efficiency that was introduced in the handling of lumber. Some 10,000 to 12,000 ft. of rough lumber, 12' long, is handled per day. In placing lumber on the saw table, crane makes possible weekly saving of 80 hours of time. Boards were formerly handled singly. 500 feet of lumber can be handled at a time—picture shows the grab with a half load.

COST SAVING ITEM—331



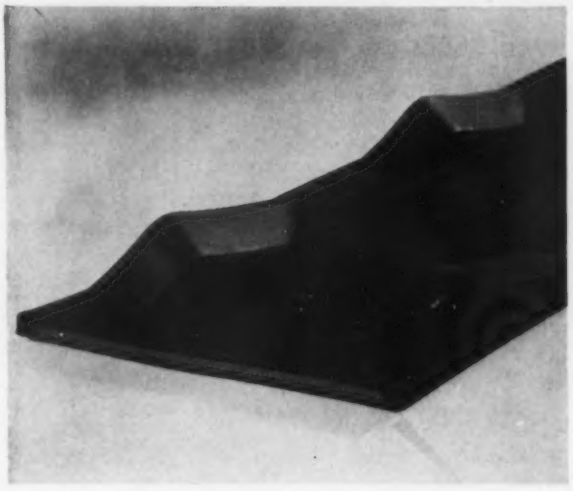


Storage Doubled with 66% Less Man-Hours

This unique roll handling truck is used by the Warren, Ohio *Tribune* to unload and store roll paper in warehouse, replacing an overhead crane. The truck and operator do the same work formerly requiring three men, with a resultant saving in labor of 66%. Storage space has been doubled by tiering rolls on end and opening up formerly inaccessible storage area which accommodates 50 rolls. Rolls previously were stored horizontally and maximum storage capacity was 130 rolls. Now, however, 210 rolls can be stored in the same space. Other benefits ensuing from use of truck are greater safety to employees and greatly reduced paper damage.

COST SAVING ITEM—332

Materials Handling



Unique Belt Conveyor Expedites Cooling

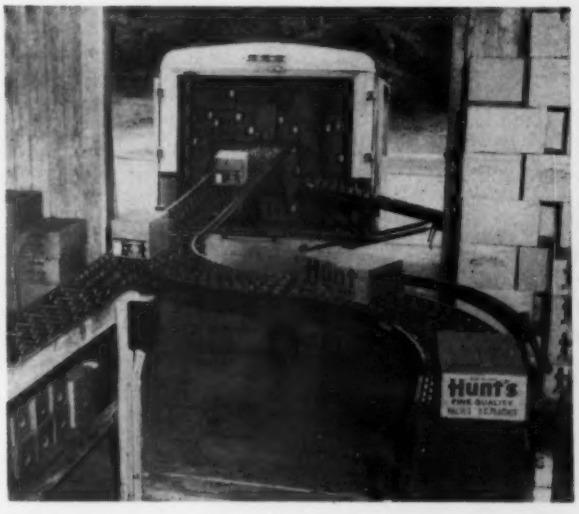
Picture shows section of unique belt, 200 ft. long and 6″ wide, with black rubber cleats spaced alternately, used in Hapco Cannery, one of Dole Pineapple Company's largest packing plants. Pineapple is packed at 195° F. and must be cooled to 90° F. before labelling and shipping. Dole engineers conceived that hot cans could be continuously shaken in cold water for quick cooling of can and entire contents. Hot cans are placed on conveyor at bottom of rising slope and cold water is continuously directed on them. Cans are continuously rocked as they roll over the cleats. Cooling time is 5 minutes of travel under the cold water spray. This method eliminated 18 to 48 hours of cooling storage time and permits direct delivery to labelling and shipping.

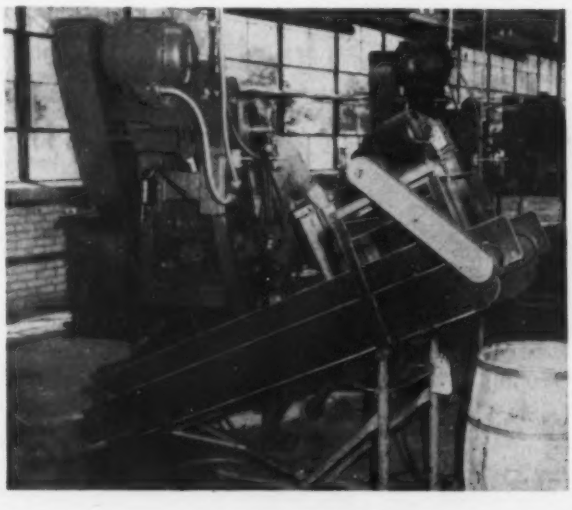
COST SAVING ITEM—333

Operating Costs Cut $600 Monthly

A flow system of power and gravity conveyors that serves all sections of a two-story warehouse has cut operating costs $600 a month and increased output 25% at the Seven-Day Wholesale Grocery, Inc., Woodville, Miss. Case goods are unloaded 50% faster and shipped in 1/3 less time. The installation includes 1200 ft. of 18″ width gravity conveyor, nine conveyor belts used as gravity line boosters, floor to floor belt conveyors, and belt conveyor at loading docks. The power units have 16-inch width belts.

COST SAVING ITEM—334



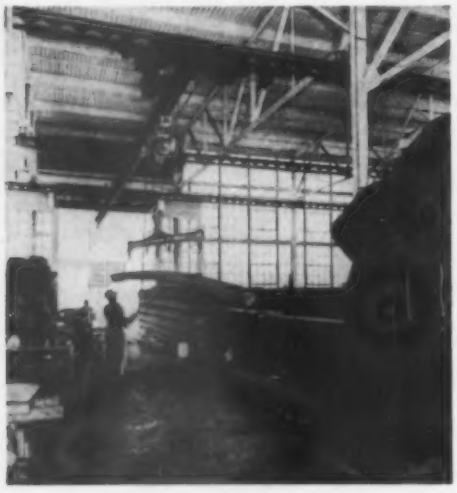


Press Conveyor Pays for Itself in 19 Days

Manual handling of metal parts lowered press-room efficiency at Anderson-Bolling Mfg. Co., Grand Haven, Mich., stamping and engineering company. Pressman had to lift average of 2 tons of material daily. Stamped parts were dropped from press into small tote boxes which had to be emptied frequently halting operations. Company installed 14 press conveyors with cleated belts. Stampings now fall from press to moving belt which elevates the parts directly into the shipping sacks or barrels. Savings in labor and overhead paid the cost of the first unit in only 19 days; consequently 13 others were installed. Delivery to customers is speeded. Safety conditions are improved, and employees favor the new handling method.

COST SAVING ITEM—335

Materials Handling



Saves $5000 Yearly on Steel Cost

The Kortick Manufacturing Co., San Francisco, Calif. is saving about $5000 annually by the installation of tramrail transfer bridge of five tons capacity for handling rods, bars and angle iron used in the manufacture of pole line hardware. Material can now be bought in 5-ton bundles. This eliminates bundling charge made for smaller bundles. Monthly saving is placed at $400. A saving of about 2 hours unload time is made per 50-ton car of steel over former method which employed a 3-ton hoist. Total savings run in the neighborhood of $5000 annually.

COST SAVING ITEM—336

150% More Material Handled

By stacking its raw materials on pallets instead of skids and replacing its hand trucks with 2500-lb. capacity fork trucks, North Philadelphia plant of the General Baking Co. is now able to receive, store and deliver up to 150% more bread and cake ingredients each month. Before installation of this pallet-fork-truck system, 40 carloads of goods were handled during 30 day period. Now, up to 100 are handled.

COST SAVING ITEM—337



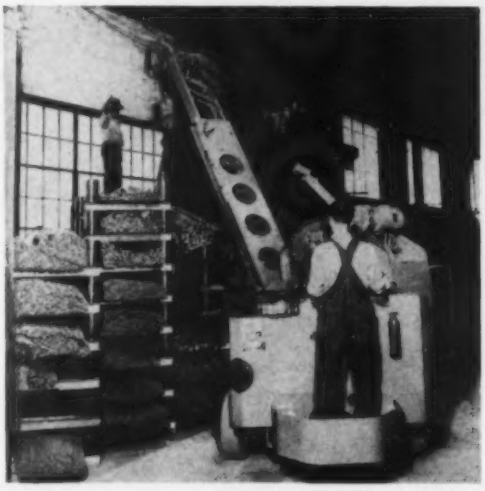


Walkie Power Lift Truck Saves 80 Man-Hours Weekly

This "walkie" power lift truck has cut a huge slice from material handling costs in a Chicago book bindery. For many years materials and products were handled by hand lift truck and skid system. When the power lift truck was acquired it soon took over the "heavy end" of the bindery's handling operations. It handles loads up to 4000 pounds. The company states that this unit has saved the full time labor of two men, or 80 man-hours per week. The truck is easily maneuvered in close quarters.

COST SAVING ITEM—338

Materials Handling



Crane Truck Cuts Handling Costs 50%

Illustration shows ingenious method of storing bar and rod stock on portable section racks, and handling with crane truck at the Jones and Laughlin Detroit warehouse. The racks overcome the disadvantages of vertical storage such as excessive manual handling, shutting off light from windows, wasteful use of storage space, etc. With the crane truck and rack system, 3 men now handle work formerly requiring 6, 8 and 10 men. Labor costs of handling bars have been cut more than 50%. Safety factor has been greatly improved. Available storage capacity has been increased. And there are savings handling steel packs and in other handling operations.

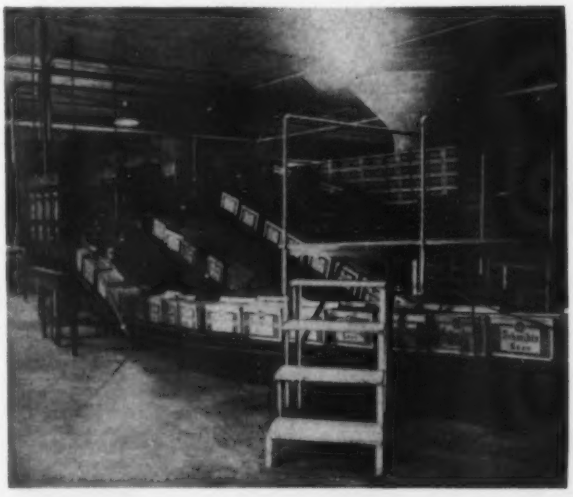
COST SAVING ITEM—339

Conveyor Cuts Loading Time 50%

At the Norton Co., Philadelphia, Pa., total time necessary to carry crated abrasive wheels from basement storage to shipping platform and to load them onto highway trucks has been reduced 50% by installation of 25-ft. inclined belt conveyor. Formerly, these 100 to 400-lb. crates and packages were moved to elevator in three-step operation. Continuous flow from storage by the 1000 lb. capacity belt conveyor permits trucks to be loaded in 1½ hrs. Elevator is now used for other duties.

COST SAVING ITEM—340





Now Handle 70% More Beer

By connecting its production, storage and shipping area with a centrally controlled conveyor system, G. Schmidt & Sons, Inc., Philadelphia, now conveys 70 to 75% more cases of beer and ales from filling machines to loading areas under peak shipping requirements. Conveyor system permits automatic run-through of almost 100% of the output of seven filling machines each of which is capable of filling 10 cases a minute. Also, system permits block storage rather than mixed storage, and company is enjoying 20% increase in storage area usefulness.

COST SAVING ITEM—341

Materials Handling



Towing Conveyor Cuts Terminal Costs

The towing conveyor system illustrated serves 47,580 square foot dock of new Central Freight Lines Terminal at Dallas, Texas. It operates down both sides of the dock, making it possible to handle speedily, safely and economically 6,000,000 pounds of freight every 24 hours. Endless chain runs in a slot in the floor. Pin from truck can be easily raised or lowered to disengage or engage conveyor chain under floor.

COST SAVING ITEM—342

Vibrator Cuts Dumping Time 1/3 to 1/10

Use of air vibrating equipment by Bunker Hill & Sullivan Mining and Concentrating Co., Kellogg, Idaho, has reduced time for dumping dump-ore-cars one-third to one-tenth of time formerly required. Ore cars are being emptied clean in ten seconds. Cars are vibrated clean with no bumping by locomotive which is effecting substantial saving in locomotive maintenance and increased car life.

COST SAVING ITEM—343





Unloading Time Cut from 100 Hrs. to 7 Hrs.

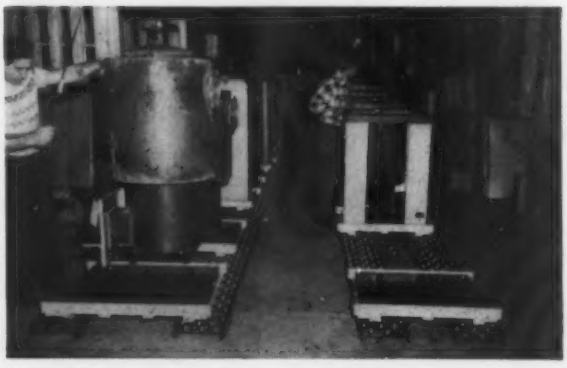
Unloading heavy, dense ferro-chrome and manganese ore used to require 100 manhours at Rotary Electric Steel's Detroit plant. Now with the aid of gas truck illustrated, only 7 manhours are needed. Unloading fire brick on pallets with the same truck—minus scoop—showed similar savings.

COST SAVING ITEM—344

Wheel Conveyor Laid on Floor Cuts Assembly Costs

Sixteen ten-foot sections of wheel gravity conveyor laid flat on floor provide low-cost, flexible assembly lines at the Lennox Furnace Co., Inc., Syracuse, N. Y. Lines can be instantly adjusted to handle the various sizes of heating units weighing from 200 to 350 pounds. Size of crew can be varied to meet production demands. Uniform appearance and quality standards are maintained by assembling, inspecting and crating the furnaces on the line.

COST SAVING ITEM—345



Materials Handling



Volume Increased; Storage Cost Reduced

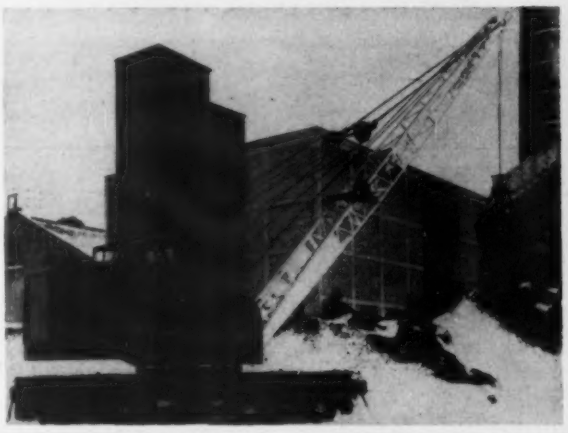
Volume has been increased by 300% and storage cost reduced substantially by use of fork lift truck for handling material in production and storage at Bell Brand Foods, Ltd., Los Angeles, Calif., manufacturers and packers of food products. Formerly, outside storage space was rented at great cost, and all stacking was done by hand. Use of lift truck enables use of all the area within the plant, and eliminated need for renting outside storage.

COST SAVING ITEM—346

Fuel and Labor Savings $7514 Annually

Industrial plant purchased diesel crane for handling coal, making saving of $13.40 based on 1½ tons of coal per day at $10. a ton, against 16 gallons of fuel oil at 10¢ a gallon, and labor saving of $15.50 per day; total $28.90 a day. In addition, productive time of crane was increased 10 hours weekly or 65 days a year, by eliminating need for firing, banking, taking water, boiler washouts, etc.

COST SAVING ITEM—347





Loading Time Cut 50%; Man-Hour Costs 20%

Smith Transfer Corp., Staunton, Va., whose eleven terminals handle practically every type of product known, uses 17 fork lift trucks in its operation, handling a volume in excess of $3,000,000 per year. Since the adoption of fork lift trucks, Smith's loading time per trailer has been cut in half, with a 20% reduction in manhour costs—and a reduction of approximately $750 per month in damage and breakage claims.

COST SAVING ITEM—348

Traveling Crane Makes Important Time Savings

Important time savings and handling of materials has been simplified at the Automatic Die & Products Co., Maple Heights, Ohio, by five-ton travelling crane. The crane unloads highway trailers loaded with steel in from 45 minutes to an hour. Previous methods required two to three hours. It is unnecessary to level truck beds at the dock. Skids and banding are not broken. Also, equipment maintenance has been sharply cut.

COST SAVING ITEM—349



Materials Handling



Manhour Costs Cut 70%; Volume Increased 400%

Alaska Packers Association, Alameda, Calif. had cost problem handling 750,000 cases of canned fruits and vegetables. Incoming shipments were unloaded manually. Eight-man crew stacked cases up to 20 ft. high. Four years ago it was decided to mechanize the entire handling operation. Four lift trucks were bought. Freight cars averaging 2,000 cases are now unloaded by one man with fork truck in 45 minutes—70% saving in manhour costs. Truck loads averaging 1000 cases are handled in 20 minutes, another 70% saving in manhour costs. In warehouse, a single fork truck constantly handles four times the volume formerly handled, and reduces manhour costs 87½%. Picture shows stacking up to 20-ft. high.

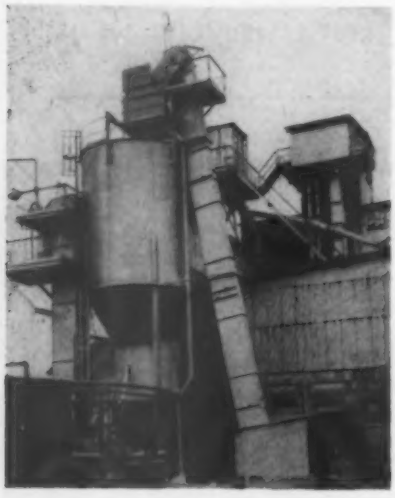
COST SAVING ITEM—350

Save $12,000 Annually With Fork Trucks and Pallets

Westinghouse Electric Corporation's East Pittsburgh Works saves $12,000 a year on one warehousing job with fork trucks and pallets. In its molded materials section, two laborers had been employed to stack bags of raw materials for storage; work was slow and bags could not be piled high without toppling. Fork truck was put on the job. Now one truck operator does all the warehousing work and direct labor savings amount to $12,000 yearly. And by palletizing the bags and stacking them to the rafters, Westinghouse doubled storage capacity in the building.

COST SAVING ITEM—351





Saves $275 Monthly on Maintenance

Installation of single strand, duplex bucket, termed a perfect discharge elevator to handle calcined fluoride chemical, has reduced maintenance costs to $25. per month for a midwest manufacturer. Maintenance cost on previous equipment averaged $300. a month. The double buckets eliminate uneven wear and stretch, permit regulation of capacity, and eliminate spillage.

COST SAVING ITEM—352

Materials Handling



Ceiling is Limit for Storage Space

The accompanying illustration shows how modern storage racks and high lift telescopic platform truck enable the Tokheim Oil Tank and Pump Co., Fort Wayne, Ind., to take advantage of all available storage space ceiling high. Here, truck is placing four boxes of parts in the top tier of storage rack. All the operator has to do is to walk along with the unit, with controls for all movements convenient to his hands. This electric truck has a capacity of 4,000 lbs. and a lift of 121¼".

COST SAVING ITEM—353

Sheet Steel Handling Time Cut 37½%

One-third of handling costs at plant of Sangamo Electric Co., Springfield, Ill. is for raw material handling. Tramrail system for handling steel sheets in receiving department was installed. The installation has resulted in saving of 12 manhours for every 70,000 lb. car of sheet steel unloaded. This job formerly required 32 manhours—it is now done in 20. In addition, worker fatigue and accidents have been reduced.

COST SAVING ITEM—354





Palletizing-Depalletizing System Cuts Cost

Palletizing and de-palletizing system designed by Hawaiian Canneries, Inc., Kauai, Hawaii, which is currently operating 13 palletizers and 4 depalletizers, has reduced handling costs, and enabled company to use its warehouse space more efficiently. As cans leave processing line palletizer arranges them in load pattern, and suction head moves over the load, picks it up, swings over pallet location and deposits full tier onto the pallet. De-palletizer is also equipped with a suction head, unloading the pallet a full tier at a time and places tier on a moving belt conveyor.

COST SAVING ITEM—355

Materials Handling



Blueprint Production Costs Cut 40%

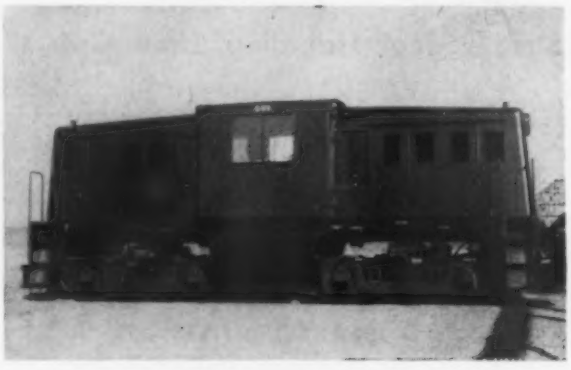
Installation of a 3x12-in. rectangular pneumatic tube system in Douglas Aircraft Co., Inc. plant, Santa Monica, Calif., permits deliveries of blueprints between departments at speeds of 20 to 25 ft. per second and cuts blueprint production costs at least 40%. The 1-1/3 mile long tube system speeds blueprints from the central blueprint station to outlying departments. Previously as many as 15 copies of a given print would be required. Now, only two are needed—one "on call" and one "on reserve".

COST SAVING ITEM—356

50% Faster Delivery

Since installing diesel locomotives, Wheeling Steel Corporation, Wheeling, W. Va., reports speed-up of delivery of molds to mold yard and pouring table of 50%; likewise, deliveries of ingots to soaking pit has shown marked improvement, and pit operation has been helped, making for faster tapping of heats and increases in tonnage. Track maintenance has been reduced to a minimum, derailments have been practically eliminated; there is no smoke nuisance nor delays account taking water, cleaning fire or blowing down. Furthermore, the diesels are available for work 95% of the time.

COST SAVING ITEM—357





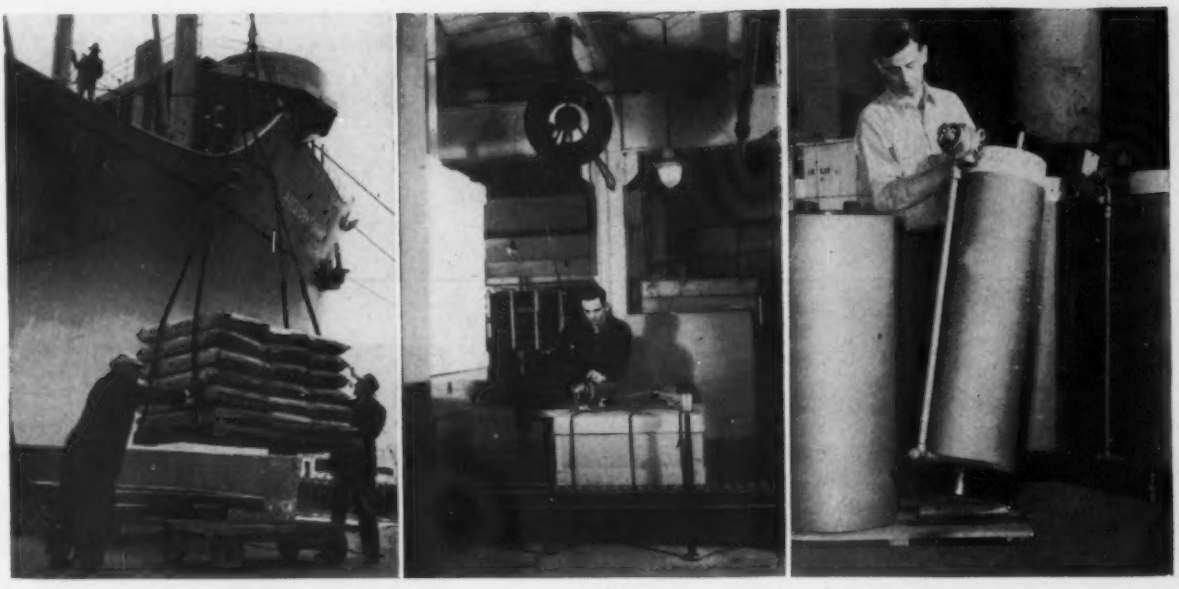
Freight Tote Boxes Reduce Damage Claims

Use of freight tote boxes made of rigidized aluminum, have not only cut the original shipping box weight by more than 50% (460 lbs. to 218 lbs.) but the Missouri Pacific Lines point out that since introduction of the boxes, claims for damage to contents have amounted to less than one-tenth of one percent of the total tonnage handled. Boxes move as "shippers load and count" and are unloaded as "consignee load and count". Boxes are sealed, and it is stated that there has not been a claim for loss of contents where the seal record has been clear. Boxes are used by the Missouri Pacific only for "on line" loading where tariffs have been set up.

COST SAVING ITEM—358

(*Please turn to page* 444)

Packaging Case Histories Reveal Ways To Cut Material, Labor and Shipping Costs



AS with materials handling, in which it plays a very important role, packaging is an activity that offers many opportunities for cutting costs. It involves container and packing materials, labor costs, palletizing, freight charges, loss and damage claims, receiving and storage. Leaders in purchasing have long stressed that purchasing departments should include packaging in their cost reduction studies.

There are many types of materials used in packaging—wooden boxes and crates, plywood, cooperage, drums, corrugated and hard fibre materials, metal containers, steel strapping, papers, plastics, tapes, pallets and a wide assortment of packing materials. The list indicates wide variety and flexibility to meet any packaging need.

Purchasing Agent Fred W. Frohn of the Bristol Company, Waterbury, Conn., in article in this issue of PURCHASING Magazine about cost reductions effected by his department, among other things explains how an analysis of the container situation at his plant and collaboration with a supplier, evolved a plan that saved warehouse space, reduced container inventory, and eliminated the issuance of small orders for containers.

The case histories presented in this section tell how the use of lighter wood, strapping, unit loading, wrapping that prevent corrosion, taping, palletizing, carton redesign, plastic bottles, aluminum drums, and so on, have led to savings running into tens of thousands of dollars.

In one instance, the substitution of aluminum drums for glass carboys for shipping chemicals made possible a saving of as much as $8.00 per pound trip; all handling costs were reduced, breakage was eliminated, and there was no need for using wooden crates as with glass carboys.

In another case, the adoption of unit bag palletizing resulted in a saving of $75.00 per carload in time and labor. Then there is the story of how the use of fibre tape for blocking out price figures on cartons made it possible to salvage over a million and a half cartons, the replacement of which would have cost $24,000. The Maytag Company of Newton, Iowa, estimates a saving of $34,000 annually by adopting a smaller container for shipping automatic washers. In addition to saving on board and strapping, easier handling is made possible by the fact that the center of gravity of the washer is nearer the center of the container, making it easier to handle. Also, more of the new containers can be stored in a given warehouse area.

The other case histories are equally interesting, telling about the savings in shipping weight, elimination of need for greasing metal parts by use of chemically treated paper, and the economical shipping and handling of 2800 lbs. of metal units in corrugated pallet packs. In another case, a shook manufacturer so stacked shooks as to leave openings for truck forks, eliminating the need for pallets.

Aside from the factor of costs, packing and shipping involves another very important angle, namely the reduction of loss and damage claims. The carriers now place this loss at $100,000,000 annually, evidencing the need for more thorough analysis of packaging requirements and use of protective packaging.

Packaging and Shipping



Lower Shipping and Handling Costs

Shipping containers illustrated are made from cylinder kraft paper resin bonded to two sides of hardwood veneer. The material has a high weight-strength ratio, and is used by Republic Aviation Corp., Farmingdale, L. I., N. Y., for shipping Thunderjet parts. Weight of material is .45 lb. per square foot which makes for lower shipping and handling costs. The material has good resistance to breakage and affords full protection to container contents. Containers made from the material have been approved by U.S.A.F. (M.S. MIL-P-4338) for domestic shipment for contents not in excess of 300 lbs.

COST SAVING ITEM—359

Over-all Packing Costs Reduced 48%

A reduction in over-all packing costs of 48%—from $2.40 to $1.25 per package—when the P. & H. Harnischfeger Corporation of Milwaukee, reorganized its entire procedure of packing repair parts for shipment. The reorganization included the installation of a roller conveyor system and the use of prefabricated wirebound boxes in nine different sizes to replace space consuming boxes of another type.

COST SAVING ITEM—360





Savings Amount to 80%, 60% and 50% Overall

Savings amounting to 80% in man-time, 60% in shipping weights, and over 50% in over-all packing-for-shipment costs are being enjoyed by the American Blower Co., Columbus, Ohio, as a result of converting to the use of wirebound crates for shipping vertical and horizontal heaters and utility sets. Another result was elimination of shipping damage due to container failure.

COST SAVING ITEM—361

Packaging and Shipping



Saves GI's 3-Hour Cleaning Job

The Army's new greaseless rifle pack eliminates messy coatings. Now, with no grease to remove, a rifle is ready for firing the moment it is taken from the paper bag. The three-hour "cleaning" job is eliminated. Secret of the greaseless pack is the chemical that lines the bag which permeates interior of the package to stop rust. U. S. Army photo.

COST SAVING ITEM—362

Over-all Packing Costs Cut One-half

A reduction in over-all packing costs of one-half, including a cut of two-thirds in man-time requirements in the packing room, was the experience of the A. O. Smith Corp., at its Pacific Coast Works in Los Angeles, by using wirebound crates for packing displacement meters for petroleum products. Plant makes 24 models of pumps in three sizes, and formerly made its own shipping crates. Two sizes of wirebound crates were designed, to package the 72 different models and sizes of pumps. Crates are received flat from manufacturer, completely fabricated, and can be stacked in minimum floor space convenient to packing area.

COST SAVING ITEM—363



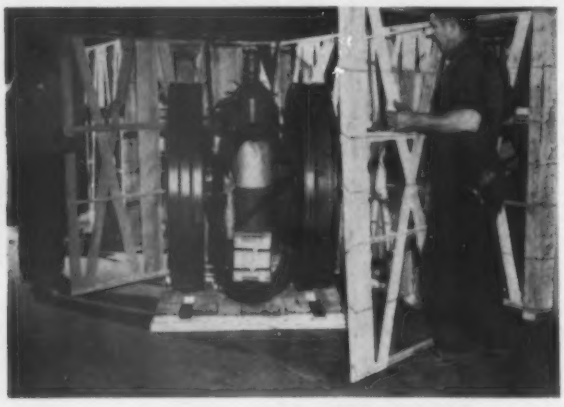


Fibre Tape Saves 1,800,000 Cartons

When rising costs dictated a new price, the Coca-Cola Bottling Co. had over 1,800,000 six-bottle carry-out cartons, all imprinted on each side with the old price "Six for 25¢." Replacing the cartons would have cost $24,000. The bottling company solved the problem by blocking out the old price, using 1½" strips of acetate fibre tape—red to match the red of the carton. Tests revealed that the tape would stick to the wax-impregnated cartons, and would resist scuffing incident to handling. Total cost of the operation, including tape and labor was $4,500, saving over 80% of the cost of replacement.

COST SAVING ITEM—364

Packaging and Shipping



60% Reduction in Over-all Export Packaging Costs

A 60% reduction in over-all packing-for-export costs was result of drastic change in method of packing fire extinguishers by the Ansul Chemical Co., Marinette, Wis. Previously the company made its own crates. The conversion to wirebound crates for both wheeled and stationary dry chemical fire extinguishers resulted in reduction of 58% in original container costs, a slash of 150 man-minutes in packing time, tare weight reductions as high as 67%, shipping weight reductions as much as 30%, reduction in insurance premiums, and elimination of damage due to container failure.

COST SAVING ITEM—365

Plastic Bottle Reduces Postage 75%

By the adoption of lightweight polyethylene bottle for packaging, a mail order company reduced postage costs on package from an average of 32¢ an item to 8¢. The postage cut prevented price increase. Illustration shows different types of polyethylene plastic bottles.

COST SAVING ITEM—366





Engineered Package Saves 20%, 40%, 45%

This double wall slotted box with specially engineered inserts for support and protection of detachable parts, saved 20% in cost over former box used; saved 40% in weight; saved 45% in handling. Anchored rope handles make package easy to handle. Product damage is reduced to a minimum, and despite its weight the box is strong enough for tier stacking.

COST SAVING ITEM—367

Freight Saving $8.00 Per Pound Trip

Chemicals that go into the Toni Home Permanent must be shipped in either glass carboys or aluminum drums. Aluminum drums are used because eight times as much material can be shipped in aluminum drums for the same tare weight. A freight saving of as much as $8.00 per pound trip is made when using aluminum. All handling costs are reduced because the aluminum drums are lighter, easier to handle. Breakage is eliminated. And aluminum drums do not have to be shipped in wooden crates.

COST SAVING ITEM—368



Packaging and Shipping



Smaller Container Saves $34,000 Annually

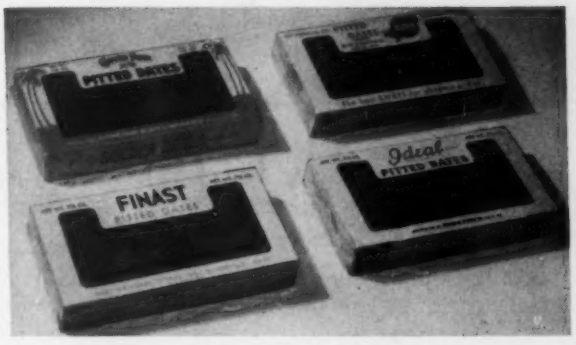
Savings of about $34,000 a year by the use of new smaller container (left) for shipping automatic washer, is estimated by the Maytag Company, Newton, Iowa. In addition to savings in corrugated board and steel strapping, center of gravity of washer is nearer the center of the container, making it easier to handle. Also, more of the filled containers can be stored in the same warehouse space, and one more tier (6 washers) will go inside a railroad box car.

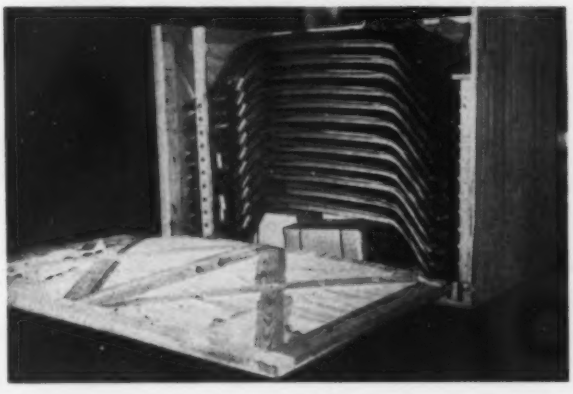
COST SAVING ITEM—369

New Design Saves Board, Packing Time

The W. H. Marvin Co., Urbana, Ohio, decreased packaging costs on pitted dates by use of automatically set-up folding carton. The new design effected economies in the amount of carbon board used, in the setting-up operation, and packing time. New carton makes rigid package. Used with overwrap it provides complete protection for contents.

COST SAVING ITEM—370





Slushing and Cleaning Costs Saved

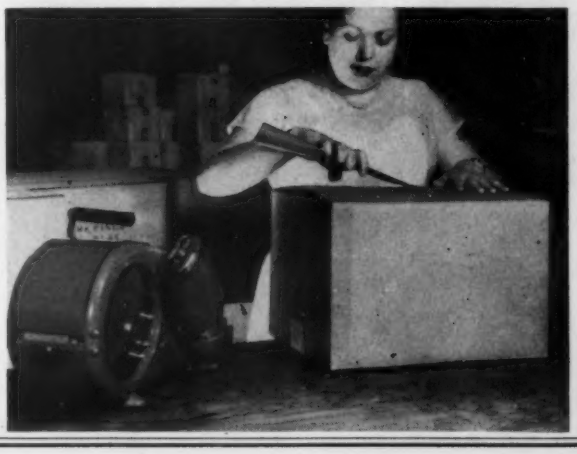
Vapor from paper stops rusting of auto parts shipped overseas. Here, body parts are packed without oil or grease coatings. Chemically coated paper lines the box and gives off an invisible vapor that permeates the crate to prevent corrosion. Also, by eliminating the need for "slushing", the Studebaker Corporation reports that removal of bulky equipment freed valuable floor space for production use. (Studebaker photo)

COST SAVING ITEM—371

Carton Sealing Time Cut Two-Thirds

A one-third stronger closure is reported when two strips of reinforced gummed tape replaces the six-strip method with non-reinforced gummed tape. Carton sealing time is cut two thirds.

COST SAVING ITEM—372



Packaging and Shipping



2800 Pounds in Corrugated Box

The Houdaille-Hershey Corp., Houde Engr. Divn., Buffalo, N. Y., is shipping heavy metal products safely and economically in corrugated pallet packs. Illustration shows 1340 shock absorbers weighing approximately 2800 lbs. in one unit. Packing and shipping costs have been drastically reduced. Another advantage is reduction in overall height of the pack by 5", tiering 3 high, and permitting easier loading. Wooden box formerly used weighed 200 lbs. New pallet pack weighs 90 lbs., and makes possible 45% reduction in packing preparation cost, standardization of basic unit carrier thus reducing inventory control problems, greatly reduced car loading time. Wooden pallets used are expendable.

COST SAVING ITEM—373

Shook Stacking for Fork Handling Without Pallets

Illustration shows one type of steel strapped box shook stacking, designed for mechanized handling without the use of pallets, by the Menominee Box & Lumber Co., Menominee, Mich. Voids are created in the strapped load to permit entry of truck fork. Varied designs have been developed for different shook sizes. These palletless loads weigh from 800 to 1200 pounds each. Number of bundles in an average carload containing about 30,000 board feet of shooks, is reduced from 2500 small bundles to 75 packs. The units can be handled in few hours by one man with fork truck as against 50 to 60 man hours of former method.

COST SAVING ITEM—374





Packing Time Cut 15 Minutes; Material Costs Cut 40%

Engineered corrugated boxes for its pump shipments have enabled the Jaeger Machine Co., Columbus, Ohio, to eliminate damage claims, reduce packaging material costs 49%, lower shipping costs through a 25-pound gross weight reduction, and cut packing time 15 minutes per unit. Boxes are easy to handle and stack. Box illustrated is slotted box with scored sheet interior packing and special hand slots for ease of handling. The empty boxes are stored flat, take up little room.

COST SAVING ITEM—375

Packaging and Shipping



Steel Strapping Equipment Solves Packaging Problem

Transit damage to shipments of Smoothedge—a plywood product for the tackless installation of carpet, is reported practically eliminated and packaging time reduced over 45% by the use of steel strap equipment at the Los Angeles plant of the Roberts Company. The plywood strips, 8' long, 1⅛" wide and ¼" thick were formerly packaged in lots of 75 or 150, and often were damaged in transit. The steel strapping method prevents bundle looseness. Corrugated paper packages securely bound with steel bands now provide virtually 100% protection.

COST SAVING ITEM—376

Strapped Corrugated Cuts Packaging Costs 87%

Packaging costs at the Inglewood, Calif. plant of L. H. Eubank & Son, manufacturers of built-in ironing boards, have been reduced 87% by the use of an improved light-weight corrugated container and the installation of a fast steel-strapping set-up. The company formerly shipped its units singly in heavy one-piece corrugated cartons costing 40¢ each. It is now shipping two at a time in steel-strapped packages made of four pieces of light-weight corrugated board at a total cost for the straps, seals and corrugated of only 10¢. Also because of lower tare weight, substantial shipping savings have been realized.

COST SAVING ITEM—377





Four Times Faster Packaging; Freight Savings

Use of filament tape has afforded four times faster packaging while reducing freight rate charges nearly $700 per year on airfreight shipments of the Continental Consumer Co-Op Assn., Seattle. Labor and material costs have been trimmed more than $1200 a year. Tape is being used to close and reinforce airfreight cartons. Formerly it took one man two minutes to reinforce a carton, as compared to taping method which requires ½ minute. Due to speedier production, unit labor costs have been cut from $.06 to $.015 per carton. Also, less than half as much material is being used to close cartons. Taping method calls for use of two 2-ft. length of ½" filament tape, pressure-sensitive adhesive gripping immediately upon contact.

COST SAVING ITEM—378

Packaging and Shipping



Speed of Strapping Increased 400%

By installing two conveyor strapping units at the end of its roller-conveyor line, the Horlicks Corporation of Racine, Wisconsin has increased the speed of its strapping operation 400%, eliminated an entire series of handling operations, and substantially reduced labor costs. By strapping and palletizing the cases as they come to the end of the packing line, one stacking operation, the hauling of unstrapped cases from storage, and the unpiling of these cases at the strapping station are now eliminated. Because straps are now applied five times as fast, labor costs have been reduced 8.4¢ per case. Operators have increased their earnings materially.

COST SAVING ITEM—379

Carton Conveyor Speeds Loading

Dual overhead conveyor and chute installation at the Triplex Screw Company, Cleveland, Ohio is designed for storage and for transport of threaded fastener cartons to expedite shipment. Cartons are made up in balcony over shipping bay and rolled across conveyor to chute. Packing men quickly pull cartons from chute at weighing scale. Each conveyor unit saves hundreds of square feet of floor space since as many as 130 cartons are stored overhead. System makes for saving of approximately three hours per day previously spent storing and transporting cartons. Product delivery is speeded up. Hazards incident to stacked cartons are eliminated.

COST SAVING ITEM—380

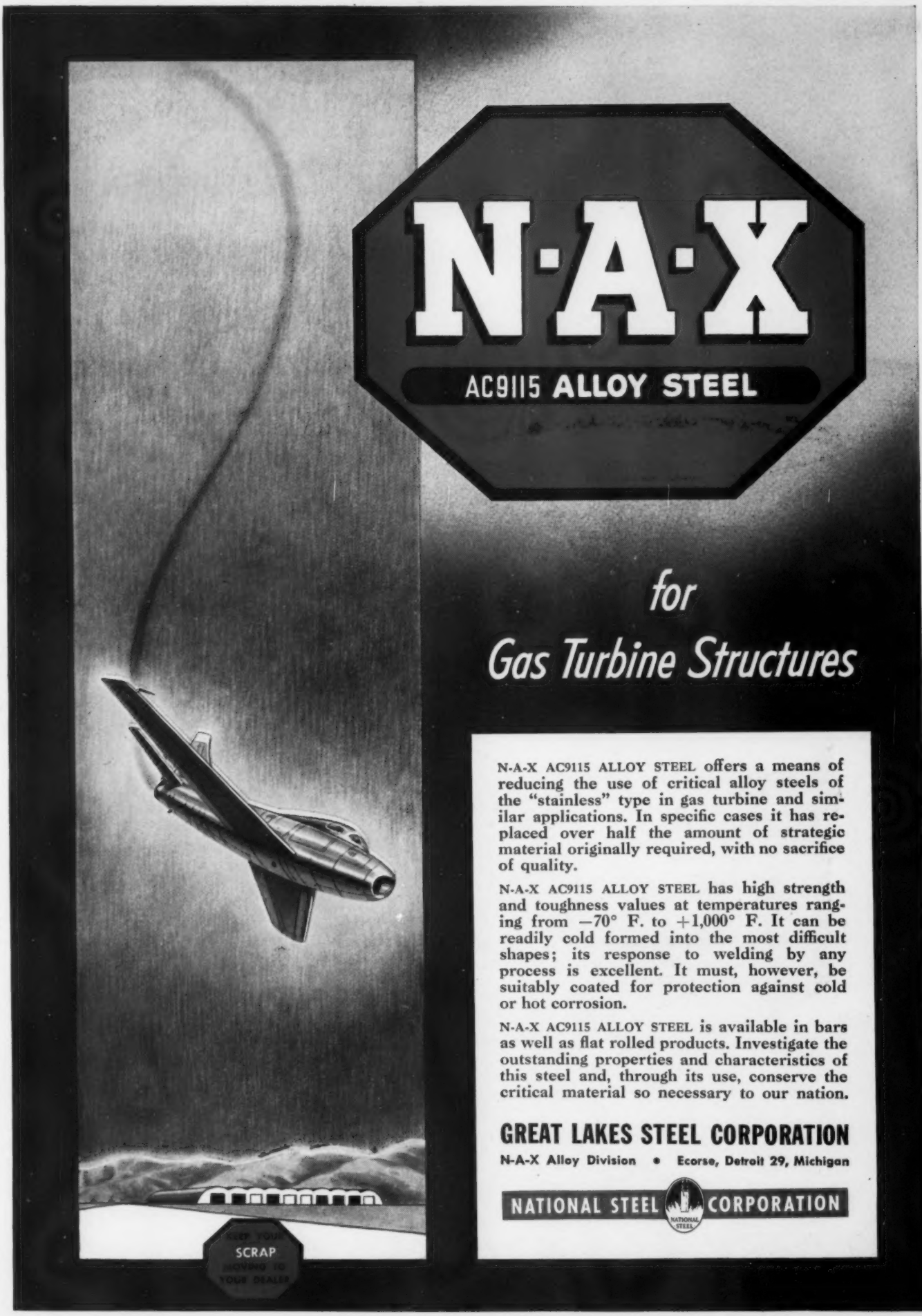




Car Unloading Savings Alone $75

Not a single bag was damaged in transit in fully loaded car of unit palletized multiwall bags received from Savannah, Ga. by Minneapolis Division of Nutrena Feed. The car contained 46 units totalling 115,000 bags. Bags were loaded 2500 to expendable paper pallet. Bags are loaded on pallet, subjected to pressure, wrapped with paper and steel bands, and thence go to freight car for shipment. Unit bag palletizing resulted in $75 saving in time and labor per carload over old unloading method. Also, it is now possible to deliver 2500 bags to filling operation in one handling instead of old method of handling 25 bales of 100 bags each. Further savings are made by using the expendable pallets for loading filled feed bags onto dealers' trucks.

COST SAVING ITEM—381



N-A-X AC9115 ALLOY STEEL offers a means of reducing the use of critical alloy steels of the "stainless" type in gas turbine and similar applications. In specific cases it has replaced over half the amount of strategic material originally required, with no sacrifice of quality.

N-A-X AC9115 ALLOY STEEL has high strength and toughness values at temperatures ranging from −70° F. to +1,000° F. It can be readily cold formed into the most difficult shapes; its response to welding by any process is excellent. It must, however, be suitably coated for protection against cold or hot corrosion.

N-A-X AC9115 ALLOY STEEL is available in bars as well as flat rolled products. Investigate the outstanding properties and characteristics of this steel and, through its use, conserve the critical material so necessary to our nation.

GREAT LAKES STEEL CORPORATION

N-A-X Alloy Division • Ecorse, Detroit 29, Michigan

NATIONAL STEEL CORPORATION

Sell as you Ship
with **RHEEMCOTE** drums

The only large steel containers with all these extra points of value!



- **Any design, including halftones,** lithographed in as many colors as you want.
- **Entire surface** of drum can be used for your selling design.
- **Family identification** can now be achieved by using same design on all containers, large or small.
- **Tough, high-gloss finish** is baked on for durable, handsome appearance.
- **Interior can be coated** with special protective lacquers.
- **Electric resistance-welded seam** is smooth and clean.

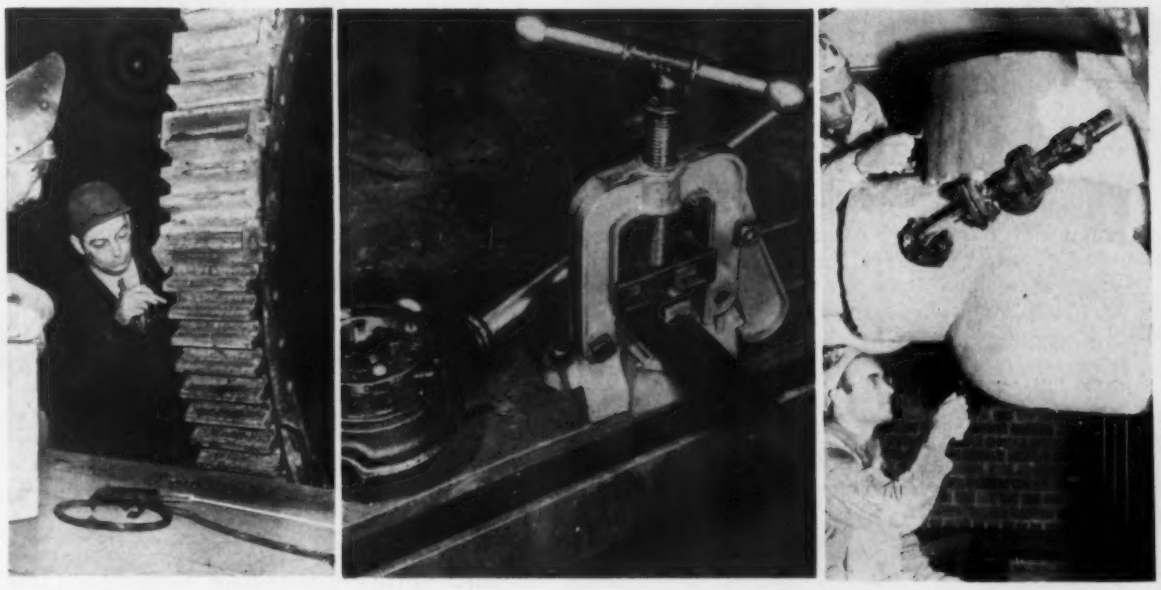
Use this powerful new advertising medium. For more information, write

RHEEM

RHEEM MANUFACTURING COMPANY • General Sales Offices, 570 Lexington Avenue, New York 22, N. Y.
Manufacturing Plants in 23 Cities Around the World — PLANTS AND OFFICES: BAYONNE, LINDEN, NEW JERSEY • CHICAGO, ILL. HOUSTON, TEXAS • NEW ORLEANS, LA. • NEW YORK, N. Y. • NEWARK, RICHMOND, SAN FRANCISCO, SAN PABLO, SOUTHGATE, CALIF. SPARROWS POINT, MD. • FOREIGN PLANTS: BRISBANE, FREMANTLE, MELBOURNE, SYDNEY, AUSTRALIA • BRISTOL, ENGLAND • BUENOS AIRES ARGENTINA • HAMILTON, ONTARIO • LIMA, PERU • RIO DE JANEIRO, BRAZIL • MILAN, ITALY • SINGAPORE

©1952 RHEEM MFG. CO.

Maintenance Takes 5% of Sales Dollar Sixty Cost-Saving Case Histories



TO say the least, maintenance is big business. It is costing industry several billion dollars annually to keep plants and machinery in good operating condition. The importance of this was emphasized by the plant manager of the Cadillac Division of the General Motors Company, at the plant maintenance show in Philadelphia, who estimated the cost of assembly line stoppage in his plant at $3,000. a minute.

Another speaker stated that the savings to be made by a good maintenance program are substantial. In some plants, he said, more money can be saved on maintenance costs next year than the year's entire profit after taxes. And, he said, taken over our whole manufacturing economy, better maintenance planning and scheduling would probably save a billion dollars.

Maintenance, safety and good housekeeping involve a wide range of equipment, tools, methods and systems, as set forth in the more than sixty individual case histories in this section. The safety phase, obviously, is of great importance. Machine guards, safety clothing, good head and foot protection, safety color schemes, sound and clean floors and numerous other factors affect efficiency and costs. In addition to minimizing personal injuries and the elimination of more serious accidents, safety, in the very nature of the case, is the basis of good morale and subsequent increased efficiency.

The case histories published cover a wide range of subjects, including lighting, lubrication, belting, combustion controls, hardfacing, powder actuated tools, metallizing, sweepers, felt anti-vibration pads, salvage and so on. They indicate that programmed plant maintenance is far reaching, affecting plant efficiency and production costs, as well as effecting direct savings in the maintenance job itself.

One of the case histories cites a saving of 90¢ per man per day by the simple thing of providing the right type of work glove. In another case, a Detroit manufacturer saved $37,000 over a three-year period by the installation of a heavy duty industrial power sweeper which does the work of a four-man crew. The capacity of the sweeper is set at 60,000 sq. ft. or more per hour.

At a plant manufacturing baby foods, the installation of a magnetic trap is reported to have saved approximately $6300 in the first nine weeks of service, incident to making unnecessary weekly pump repairs and a reduction of 150 to 200 man-hours of downtime weekly.

The many case histories presented substantiate that the bill for maintenance, which exacts around 5% of the sales dollar, can be materially reduced by means of proper programming, analysis and supervision of the physical factors involved, and modern equipment. The field offers many opportunities for saving.

Maintenance



One Drum Does What Eight Used to Do

A manufacturer of brass and copper products was having trouble with the lubricant used on open gears of draw benches. The compound did not stick to the gear teeth but flew off and large quantities accumulated in the machine pits. Maintenance men applied a specialized open gear grease which spreads evenly over the gears and does not fly off. One drum of this grease now does the same work that was done by eight drums of the lubricant formerly used. Also its use eliminates the job of cleaning spent greases from machine pits.

COST SAVING ITEM—382

Longer Life from Wheel Bearings

The Denver Chicago Trucking Co., Inc., Denver, Colo. made change to lubricant especially designed for wheel bearings such as are found on long haul trucks. The new lubricant, which has now been used for several years, costs slightly more than conventional types of lubricants. However, the general fleet superintendent states that wheel bearings are now giving much longer life than when conventional type lubricants were used, and that the savings in labor costs and replacements of parts has more than made up for the small difference in price between the new lubricant and ordinary lubricants.

COST SAVING ITEM—383





Lubricant Extended Bearing Life 50%

Under actual tests at Republic Aviation Corporation, Farmingdale, N. Y., new lubricant extended bearing life 50% or better as compared with other lubricants tested. It was also found that, during test, it increased efficiency of machines 20% by reducing friction loss. The company has been using the lubricant successfully for the past eight years.

COST SAVING ITEM—384

Housing Saved by Electrode for Cast Iron

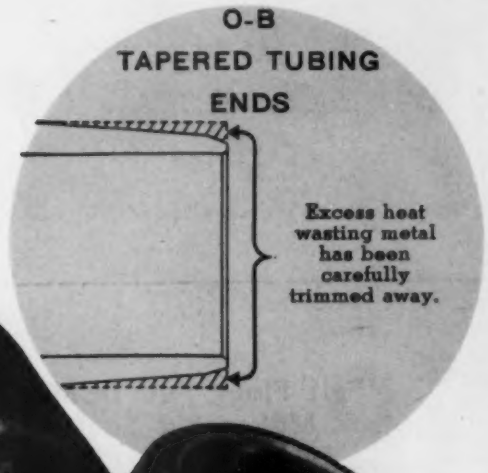
When the driver of a ten-ton truck hit a cement culvert with its rear duals, it looked as if the truck might be out of commission for a long while. Confronted with a broken $250 differential housing for which replacement was not available, the Miami contractor decided to weld it, using a special high-strength electrode for cast iron. After one day's work, including preparation, the truck was again ready to roll, and since has been "on the line" without a mishap. Cost to repair housing was less than one-fifth that of new housing.

COST SAVING ITEM—385



FASTER HEATING–EASY TO SOLDER

A minimum of torch time brings the tapered tubing ends on O-B valves to proper soldering temperature. Heat distribution is even, a better flow of solder is produced, and a completely filled, leaktight joint results. The next time you have a tubing job, ask your distributor for O-B solder-types — the valves with the fast heating, easy soldering tubing ends.



No. 28 Line Gate Valve
¾ to 2-inch, 125 pounds
W.S.P.- 200 lbs. W.O.G.
Also available with rising stem - Ask for No. 29 Line.

O-B VALVES

BRONZE GLOBES, ANGLES, GATES AND CHECKS
FOR INDUSTRIAL SERVICE

Ohio Brass

MANSFIELD • OHIO

4190-V

Maintenance



300% More Life from Dies

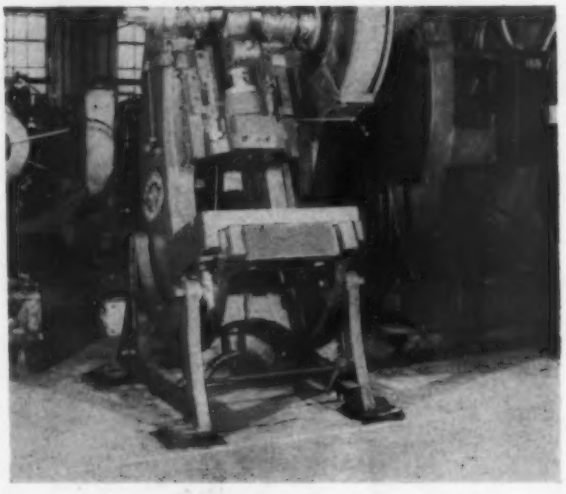
300% more life from dies overlaid with hard aluminum bronze, was the experience of the Industrial Stamping and Manufacturing Company of Detroit. Production was increased from 3,600 deep drawn cases (for sealed refrigeration units), to 15,000 cases, when steel punches and die rings were overlaid with aluminum bronze electrodes having a 300 Brinell hardness. Down time was greatly reduced and operating time increased. Efficiency was increased 15% because presses did not have to be stopped to hone and polish the dies or change tools in middle of run. The stainless steel units drawn over the hard aluminum bronze overlay did not have any gall or scratch marks as when drawn over steel dies, hence there also was considerable saving in the cleaning room.

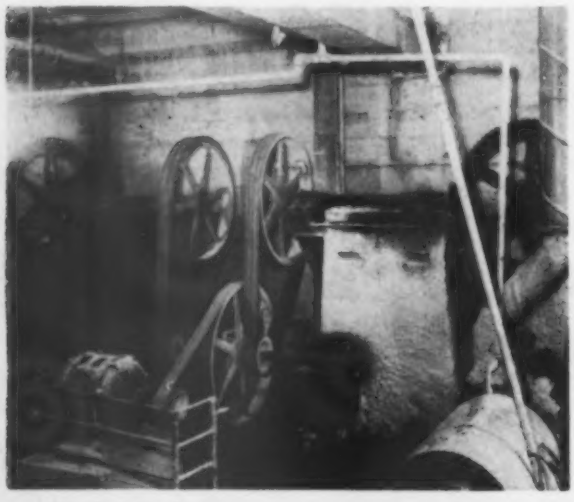
COST SAVING ITEM—386

Felt Floor Pad Insulation Makes Big Savings

Eastern manufacturer who has many metal working machines, solved noise and vibration problems and also machine installation problems by use of special felt floor pads which could be cemented to the floor instead of bolting machines to the floor. It was found after months of operation that machines were anchored as "firmly as ever". Savings in initial time and labor of installing machinery are placed at 75%. Similar savings accrued when machines were moved. Some 60 to 85% of transmitted noise and vibration was absorbed.

COST SAVING ITEM—387





V-Belts Cut Maintenance Cost $600 Annually

Agitator paddles on the stock tanks at the Maizewood Insulation Co., Dubuque, Iowa, were driven by sets of bevel gears, with the bevel gear pinion shafts driven by flat belts from a jackshaft. Heavy loads in the stock tanks cause the belt lacings to stretch and pull out. Maintenance and belt costs were running over $50 monthly. A double reduction type v-belt rope drive was installed. Wayne Bendschneider, superintendent, reports that in the six years the rope drives have been in service, they have needed no maintenance service, and have saved the company approximately $600 a year in repair costs.

COST SAVING ITEM—388



Gold Depository in Fort Knox, Kentucky

. . . more important than gold!

The most important metal today is not the tons of gold buried at Ft. Knox!

Far more important are the millions of tons of iron and steel scrap so desperately needed to make new steel. All scrap, actual and potential, needs to be gathered up and channeled to the steel producing plants-NOW, today, tomorrow and tomorrow. So long as the steel industry is called upon to produce two million and more tons of ingot steel per week, it must have one million and more tons of scrap each week.

Steel producers are getting the iron ore, limestone and coal they need. But the scrap situation is critical and will continue to be so until inventories are built up substantially.

As a user of steel--as one interested in seeing that America's rearmament program is not too little and too late--you can do your part to see that your community and your business keep scrap moving toward the mills.

YOUR SCRAP V YOUNGSTOWN IS NEEDED

The Youngstown Sheet and Tube Company

General Offices--Youngstown 1, Ohio
Export Offices--500 Fifth Avenue, New York
MANUFACTURERS OF CARBON ALLOY AND YOLOY STEELS

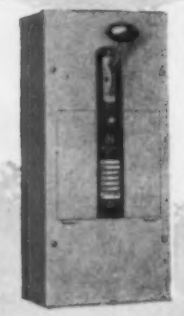
The steel industry is using all its resources to produce more steel, but it needs your help and needs it now. Turn in your scrap, through your regular sources, at the earliest possible moment.

SAFE, DEPENDABLE
Power *and* Light Control



KLAMPSWITCHFUZ
SWITCHBOARD

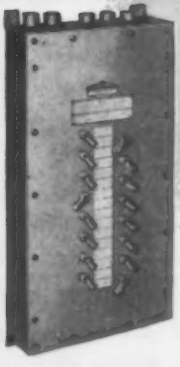
SHUTLBRAK SWITCH



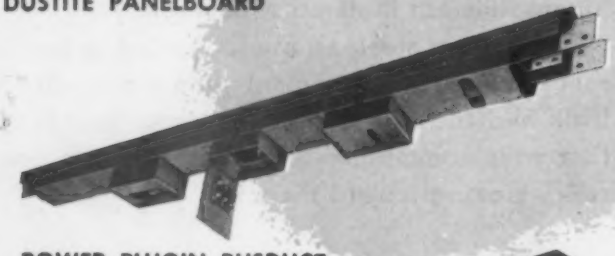


LNTP PANELBOARD

FA



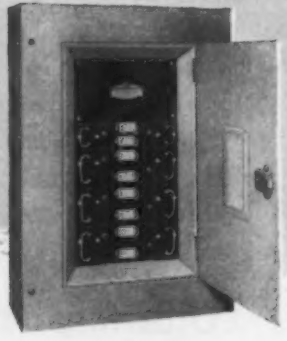
DUSTITE PANELBOARD



POWER PLUGIN BUSDUCT



MIDGET POWER PLUGIN BUSDUCT

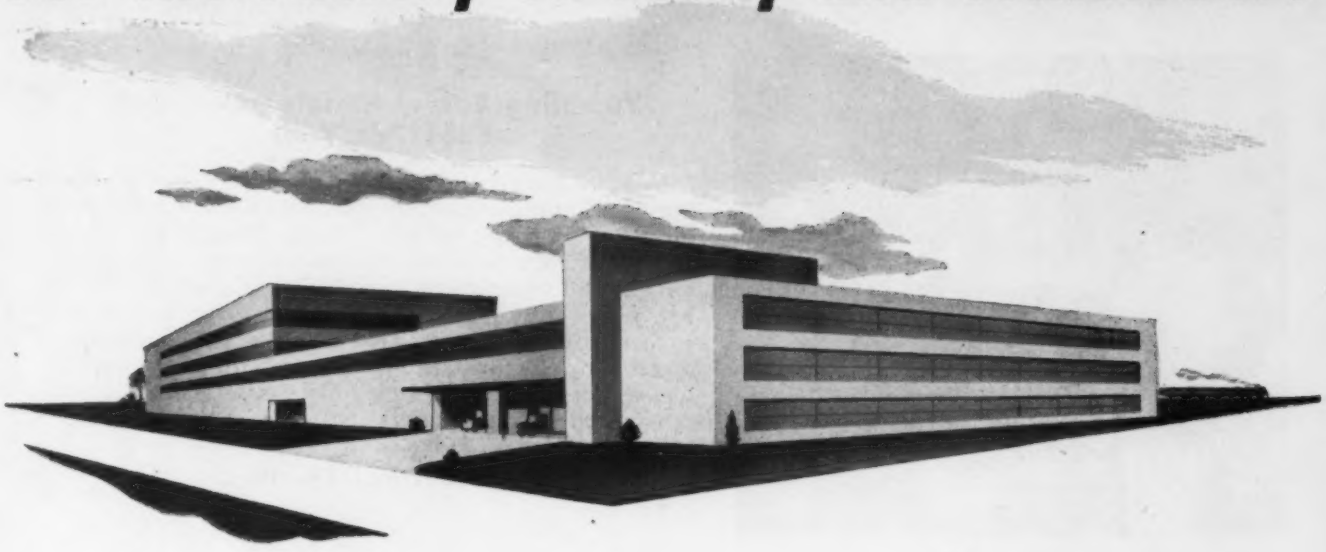


PULFUZSWITCH
POWER PANELBOARD



THERMAG COLUMN
TYPE PANELBOARD

For the Factory of Today and Tomorrow!



That's what Ⓕ offers—safe, dependable and efficient electrical products for the distribution and control of light and power.

For years, Ⓕ has specialized in the manufacture of switchboards, panelboards, busduct and other similar equipment for industrial, commercial and institutional use—products that are modern in design, rugged in construction, easy to install, provide long-lasting, trouble-free service and require less maintenance.

If you are contemplating a new plant, or if you are planning to expand, modernize or otherwise improve an existing plant—regardless of size—have your architect or engineer contact your nearest Ⓕ representative (listed in Sweets) for helpful information . . . or write for bulletins.

Frank Adam Electric Co.

P. O. BOX 357 ST. LOUIS 3, MISSOURI

Makers of BUSDUCT • PANELBOARDS • SWITCHBOARDS • SERVICE EQUIPMENT • SAFETY SWITCHES • LOAD CENTERS • QUIKHETER

FA TRADE MARK

Maintenance



Tumbling Barrel Maintenance Cut $361 Per Year

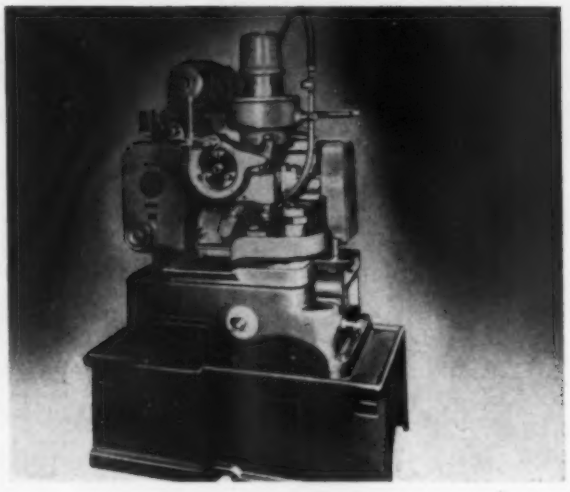
Wooden mechanical finishing barrels are used to deburr and burnish machine parts at Bendix Products Divn. of Bendix Aviation, South Bend, Ind. The wooden barrels wore out in three months, and maintenance and replacement costs per barrel averaged $548 per year. The company then fabricated the barrels of rubber faced steel plate. As a result barrel life has increased to more than 12 months, and cost of maintaining each finishing barrel has dropped to less than $187 a year—cutting maintenance costs on each barrel $361.

COST SAVING ITEM—389

New Cutting Oil Doubles Gear Shaper Production

The gear shaper illustrated is used to shape gears from 41-40 heat treated steel with a Rockwell "C" 30-34 hardness. With oil previously used, ten gears constituted the best production run between sharpening of the cutter. Following the installation of the specialized, sulpho-chlorinated cutting oil, production doubled —jumping to twenty gears per sharpening cycle.

COST SAVING ITEM—390





Orlon Uniforms Save More than $3,000 Annually

Gates Factory Store, Inc., Denver, Colo., had heavy expense account cotton coveralls becoming unserviceable after only two or three days of use. Uniforms are worn by 40 men in store and on fleet of service cars. Manager investigated use of orlon fabric for uniforms. He states that original uniforms of this fabric after nine months of service do not show one hole, and appear to be good for at least another nine months. He estimates that the new uniforms have reduced the clothing bill of the battery department by more than 80% for a net savings of more than $300 a year.

COST SAVING ITEM—391





How to eliminate packaging nightmares

Sturdy, colorful H & D PREPAKS protect products and profits alike. They banish the costly nightmares of goods damaged in transit. They eliminate the need to repack for retail delivery.

This attractive PREPAK® stimulates sales at point-of-decision. Handsomely printed in brown and black on white linen-finish corrugated board. Product facts are prominently featured to assist the sales personnel.

H & D can eliminate your packaging nightmares too. Practical merchandising packages provide protective strength, lightweight, easy packing, compact storage, dual use. Write for the 14-volume "Little Packaging Library." Hinde & Dauch, 5205 Decatur Street, Sandusky, Ohio.



H&D®

HINDE & DAUCH

Authority on Packaging

Akron, Baltimore, Battle Creek, Mich., Bloomington, Ill., Buffalo, Chicago, Cincinnati, Cleveland, Columbus, Denver, Detroit, Fairfield, Conn., Findlay, Ohio, Gloucester City, N. J., Greensboro, N. C., Hoboken, Indianapolis, Jamestown, N. Y., Kansas City, Lenoir, N. C., Minneapolis, Omaha, Plymouth, Ind., Reading, Pa., Richmond, Va., Roanoke, Va., Rochester, Sandusky, Ohio, Shrewsbury, Mass., St. Louis, Toledo, Watertown, Mass.

Maintenance



3400 Hours of Lubricant Service

This speed reducer, operating for a New England manufacturer of building plasters, is getting on the average 3400 hours of lubricant service from an SAE No. 60 speed reducer lubricant. The machinery involved is a 150 hp herringbone speed reducer driving Hardinge ball mill. Manufacturer reports extremely low lubrication costs and no replacement parts expense since 1935 at which time this lubricant was first used. When the S.R. lubricant is drained and settled it is used in place of a general purpose oil.

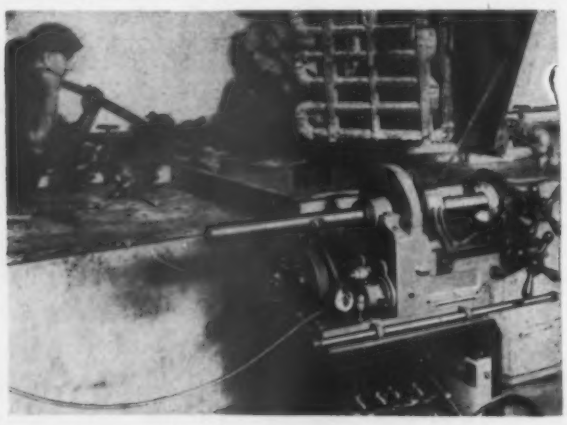
COST SAVING ITEM—392

New Cutting Base Saves $320 per Machine Per Year

A Cleveland plant machining collets from Hy-Ten steel ("M" temper) on 3" Conomatics, at a surface speed of 85' per minute and a feed of .005, reports a saving of $350 per machine per year since switching to a fortified all-purpose cutting base which can be diluted 1 to 25 with water for this operation. The cost of this cutting fluid, when so diluted, is about 7¢ per gallon.

COST SAVING ITEM—393





Pipe & Bolt Machines Show Savings

The Champlin Refining Company, Enid, Okla. installed pipe and bolt threading and cutting machine in mobile shop for service station maintenance. Use of this equipment has made it unnecessary for this crew to "carry half a truckload of fittings for normal repair work". Similar machine is used in salvage department in one district of Champlin's pipe line company, and because of its adaptability and ruggedness had repaid original investment many times over.

COST SAVING ITEM—394

Withstands Shot Blast Six Times Longer

When the walls of this shot blasting booth used by a Wisconsin foundry were constructed of heavy steel plate, the shot wore through a booth wall every three months. A two-day shutdown was required for repairs. Rubber faced steel plate was hung from wall brackets in the booth. These lasted 18 months—fully six times as long as the steel plate formerly used.

COST SAVING ITEM—395





Nice trick, and you can do it... with Pure Oil Industrial Lubricants

Many of the top-quality oils and greases in Pure Oil's complete line of industrial lubricants have been designed to do several *different* jobs, instead of one specific job.

And to do each job *equally well.*

This enables you to do *all* your lubricating with *fewer* lubricants. In other words, you can

simplify and save...with

Pure Oil Industrial Lubricants

THE PURE OIL PURE COMPANY, U.S.A.

Be sure with Pure

If you are interested in something that can definitely cut your costs (and who isn't, in times like these?), write: The Pure Oil Company, Industrial Sales, 35 E. Wacker Dr., Chicago 1, Illinois.

Typewriter mainspring redesigned



for volume production at lowest possible cost

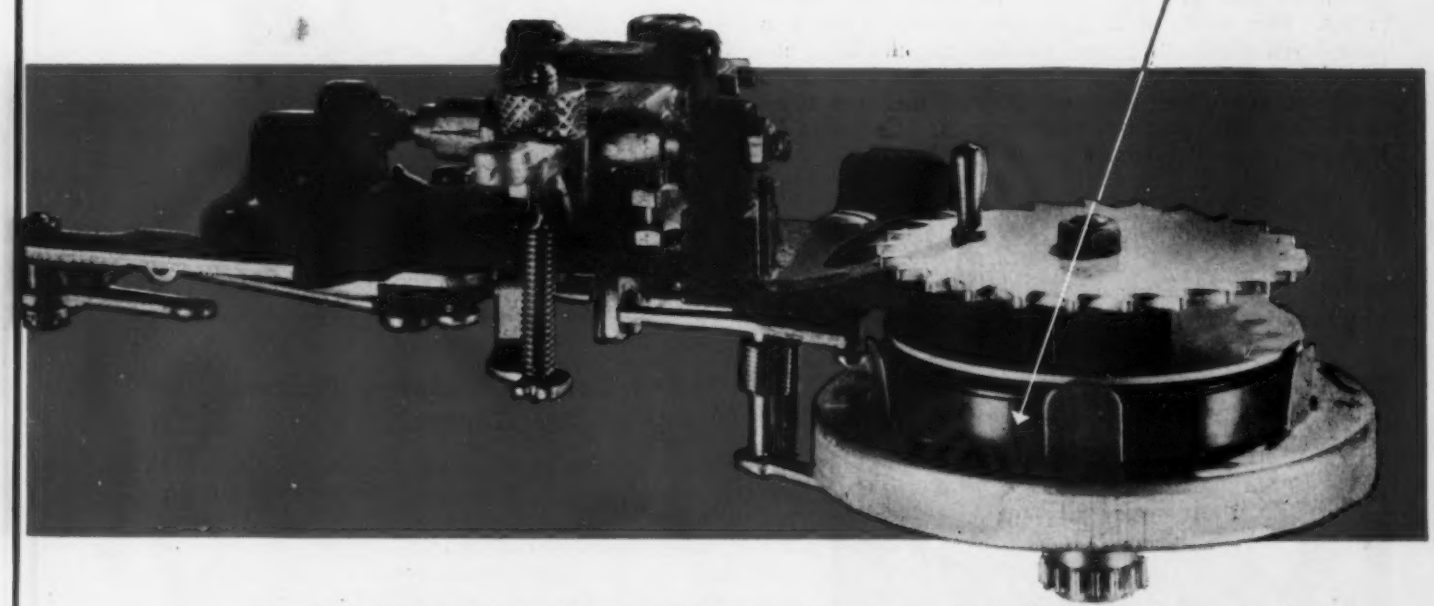
The American Quality Spring shown here is the absolute heart of a famous-make typewriter. It furnishes driving power for the entire typewriter—operates the drawbar, controls spacing between characters, drives the ribbon mechanism.

The spring is wound and unwound thousands of times every week, yet tension remains constant and breakage is almost unheard of.

To perfect the mechanical properties of the spring, our engineers worked hand in hand with the manufacturer's engineers. The design was altered to eliminate a weak spot that was responsible for breakage. This change was combined with others that made the spring easier to produce in quantity—at a lower cost.

There's only one way to get such improved spring performance at an even lower cost: let us work with you in the early stages of design. Our designers are real experts on the mechanics and metallurgy of spring design. We know just what our modern spring-making machinery will do—and therefore we can help you design a better spring that is easier to mass-produce, cheaper to buy.

This is the mainspring drum bracket group on the typewriter mentioned above. The American Quality Spring is in position, ready for years of trouble-free service.



AMERICAN STEEL & WIRE DIVISION, UNITED STATES STEEL COMPANY, GENERAL OFFICES: CLEVELAND, OHIO

COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO, PACIFIC COAST DISTRIBUTORS

TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA., SOUTHERN DISTRIBUTORS · UNITED STATES STEEL EXPORT COMPANY, NEW YORK

USS

AMERICAN QUALITY SPRINGS

UNITED STATES STEEL

Maintenance



Vacuum Cleaners Recover Mercury

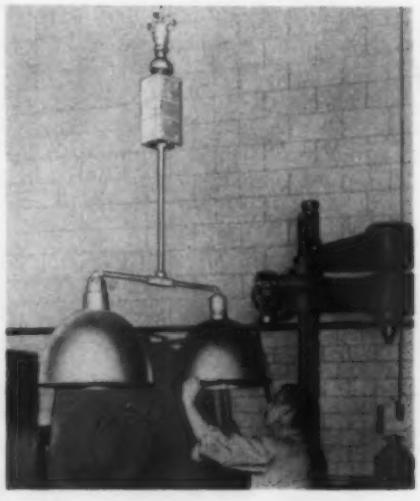
Filling and ball-welding the mercury buttons used in G-E "silent switches" often leaves particles of stray mercury on the floor and on the equipment involved. This constitutes both a waste of mercury and a potential health hazard. Ordinary vacuum cleaners are not strong enough to pick up mercury from a smooth surface. So General Electric put an industrial vacuum cleaner to work. The cleaner recovered enough stray mercury in three months to pay for itself, and also reduced the health hazard.

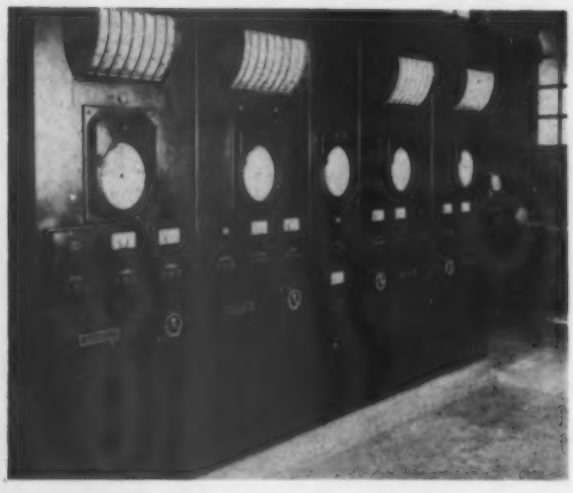
COST SAVING ITEM—396

Disconnecting-Lowering Fixtures Reduce Maintenance

Installation of disconnecting and lowering hangers in Aluminum Company of America's Cleveland Works, has resulted not only in reduced lighting maintenance costs, but also provided maximum safety for service crews. The overhead lighting fixtures are serviced at floor level, eliminating need for ladders, climbing, etc. The lowered fixtures are "dead". In this installation combination fixtures employ 400-watt mercury tubes and 750 or 1000-watt incandescent bulbs. Ceiling is 30′ high and luminaires are 24′ above floor level.

COST SAVING ITEM—397





79.3% Boiler Efficiency Gained by Controls

With installation of complete system of automatic electric combustion control and instrumentation in boiler room of Raybestos-Manhattan, Inc., Passaic, N. J., when price of coal was $4.48 per ton, it was estimated that new equipment would pay for itself in three years. Since then, in spite of big increase in price of coal, records show that amortization of original investment has been accelerated and that greater economy of operation will return higher long term savings. Since the installation, boiler efficiency of 79.3% has been attained. Boiler maintenance has decreased appreciably. Also installation has cleared up trouble of wear on tubes by impingement of cinders.

COST SAVING ITEM—398

Simple Solution

to a Purchasing Problem—

ORTAC hose that answers most of your needs!

THERE'S a simple answer to hose purchasing problems—Goodyear's ORTAC *(Oil Resistant Tube and Cover)*. For this ONE construction was designed by the G.T.M.—Goodyear Technical Man—to handle MANY jobs.

ORTAC will withstand gasoline, fuel oils and distillates. It resists attack from solvents. Contaminants found in water don't harm it. ORTAC is excellent too for air and spray service. Its cover resists sun, weather and wear—and ORTAC has a tube that won't flake, swell or discolor.

Ask your nearest distributor for the full story of ORTAC—or write Goodyear, Akron 16, Ohio.





LOOK FOR YOUR GOODYEAR INDUSTRIAL RUBBER PRODUCTS DISTRIBUTOR *in the yellow pages of your Telephone Directory under "Rubber Products" or "Rubber Goods." He handles Hose, Flat Belts, V-Belts, Molded Goods, Packing, Tank Lining, Rubber-Covered Rolls built to the world's highest standard of quality.*

GOODYEAR

THE GREATEST NAME IN RUBBER

Ortac—T. M. The Goodyear Tire & Rubber Company, Akron, Ohio

Maintenance



Plastic Tape Outwears Striping Materials

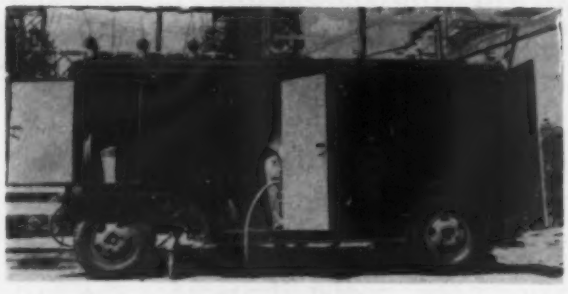
Illustration shows trucking lane and safety area marking with plastic film tape in industrial plant. It was found that the tape outwears sprayable or brushable striping materials five times. Other advantages are resistance of tape to acids, alkalis, hydrocarbons, etc., ease of application, ease of changing marked-off areas without leaving traces of former marking. Seven colors are used to identify specific floor areas—red for danger areas, canary yellow for safety zones, etc.

COST SAVING ITEM—399

Restores Old Transformer Oil to New Oil Specifcations

Portable system for purification, dehydration and degasification of insulating oils was installed by Portland General Electric Co., Portland, Ore., on 4-wheel trailer equipped with small testing laboratory. Supt. Delmar L. Brown, testing department, reports that although the mobile refinery has the advantage of delivering hot dry insulating oil to the transformer or switch at relatively low cost, the final criterion of the value of the refinery is the quality of the oil. Tests of the purified oil show that dielectric strength is about 40 kv which is 10 kv above normal value of new oil which has been aerated in shipment; moisture content of the oil is virtually zero; acid content is normally very low—0.05 to 0.20 mg KOH neutralization number; soluble contaminants have been effectively removed, and oil is so thoroughly degasified that it may be returned to an energized transformer without danger of insulation failure.

COST SAVING ITEM—400





Hardfacing Eliminates Sprocket Replacement

Using company found that when teeth of tractor drive sprockets are hardfaced, average service life is tripled, eliminating two-thirds of sprocket changes. Most sprockets are hardfaced with hardface electrodes for less than $50, total cost, and generally at about half the cost of a new sprocket. Replacement is practically eliminated, as the same sprocket can be hardfaced repeatedly. Hardfacing reduces time required for maintenance and keeps equipment on the job.

COST SAVING ITEM—401



Tonic for Paint Plants

● As lacquer men in paint plants will tell you, solvents with an appetite for nitrocellulose are the key to better quality products. Shell chemists, using petroleum, are producing solvents with the best appetite of all: *ketones.*

Taking advantage of this, lacquer makers can dissolve solids faster, thus boost output. And ketones allow use of more low-cost diluents. Tonic effect: lower production cost.

To lacquer *users,* the greater capacity of ketones for nitrocellulose means greater surface covering power . . . tougher, longer-lasting coatings.

Development of better solvents is another example of Shell Chemical's partnership with industry and agriculture. Application of petroleum chemistry to your needs is our constant purpose.

Shell Chemical Corporation

Chemical Partner of Industry and Agriculture

NEW YORK • SAN FRANCISCO

Maintenance



Multiple V-Belt Saves $104.50 a Month

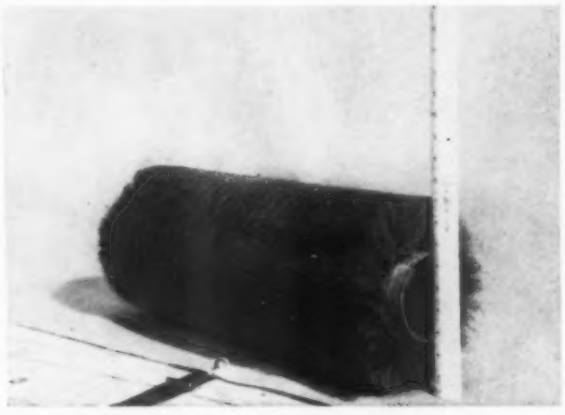
These 18 V-belts drive heavy pumps for drilling oil wells, operating 24 hours a day, 7 days a week. Belts previously used couldn't stand the strain and averaged nine months' service. Grommet v-belts were tried and after 19 months service drilling wells totalling 76,000 feet deep, are said to look as good as the day they were installed. Monthly saving is placed at $104.50.

COST SAVING ITEM—402

Brush Replacements Reduced 400%

Replacements were reduced 400% by an Ohio manufacturer by equipping a power floor sweeper with an anchored-in-steel brush. This brush outlasted five other brushes. It was returned for refilling after ten months of service. Although the outer diameter of the brush was reduced by wear from 13¾" to 9⅛", the brush face was still serviceable. Machine down time and labor costs of maintenance were also cut.

COST SAVING ITEM—403





Hammer Life Increased Six Times

An eastern asphalt plant uses two sets of nine pulverizing hammers, set 180 deg. apart and rotating at 2500 rpm, to pulverize roofing trimmings of asphalt, paper and slate. Made of spring steel, average hammer life was two to four days. When the tips were hardfaced with tungsten-carbide inserts, average hammer life was increased to four weeks, saving on parts, disassembly and assembly labor, and lost pulverizing time.

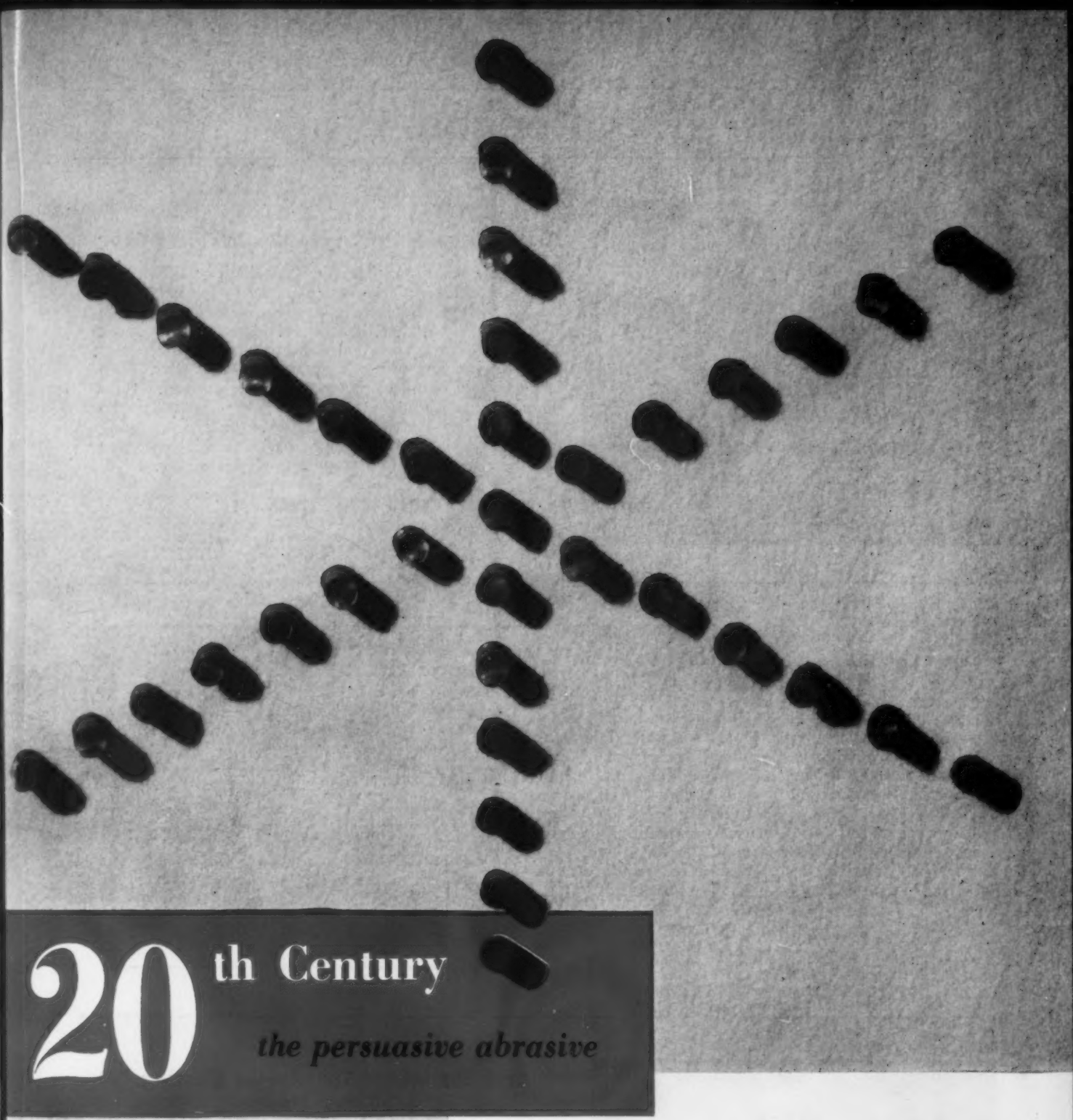
COST SAVING ITEM—404

Braze-Welding Saves Half the Cost and Months of Time

Replacement of this $1,400 ring gear would have taken more than six months. Braze-welding at half the cost rebuilt badly worn teeth and restored the gear to service in just a few days.

COST SAVING ITEM—405





20th Century

the persuasive abrasive

Any reference to 20th Century Drawn Steel Shot will emphasize its highest quality, economy and ability to stand hard use.

THE CLEVELAND Metal Abrasive CO.

810 East 67th Street Cleveland 8, Ohio
Howell Works: Howell, Michigan

One Of The World's Largest Producers Of Quality Abrasives
Normalized (Copyrighted Trade Name)–Hard Iron–Cut Wire–Powder

Maintenance



Glass Panel Heat Saves $26,000 First Year

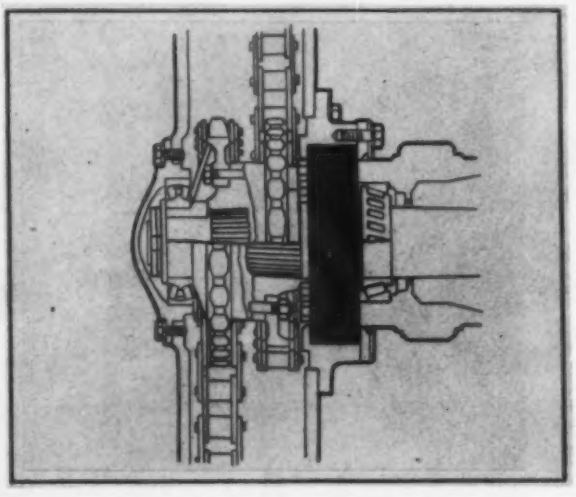
Radiant glass panel heating installation at Norwich Industries, Inc., Norwich, Conn., made for net saving of $26,000 the first year, as shown by following data: Replacing worn out boilers would have cost about $25,000. The glass panel heating installation cost $6,000. Coal formerly cost about $11,000 a year. With new system, cost was under $8,000 for current. Fireman's wages were $4,000. New system—no wages, no maintenance. Net saving $26,000. Future operating economy is placed at $7,000 a year. Valuable space was saved. And, workers are comfortable all winter.

COST SAVING ITEM—406

Laminate Bearings Outwear Metal Sleeves

Premature sleeve bearing wear was experienced by Caterpillar Tractor Company on its motor grader tandem-drive housing pivot bearings. These bearings are subjected to intermittent oscillating motion and difficult to lubricate. Field reports showed that metal sleeves became scored after only 300 to 600 hours of operation. Change was made to self lubricated graphitized phenolic which eliminated the sleeve trouble. Result, three years of use—no trouble reports. Saving in maintenance is much more than the saving in replacement cost.

COST SAVING ITEM—407





Belt Eliminates Shutdowns Costing $250 Per Hour

White strip at left is hot steel. Temperature of steel is 2250 deg. F. Belt drives 60" saw cutting red hot steel 3½" to 11" in circumference. A seven ply rubber belt with fabric backing lasted from ten to 60 days on the average. Rawhide wearing strips riveted to pulley side of belt had to be changed once a month requiring eight hours shutdown time at cost of $250 per hour. A multicord transmission belt, #100 cord, was installed, which does not require rawhide strips. This belt is still in service after installation two years ago, and has never been stopped for repairs or "extras" to keep it in service.

COST SAVING ITEM—408



SEYMOUR

Nickel Silver
Phosphor Bronze
Nickel Anodes
in defense work---

EVERYWHERE!



IN THE AIR---





ON THE EARTH---



SEYMOUR PRODUCTS have had vital roles in two World Wars, are now "enlisted" for peace. Reasons for this are: their varied usefulness in war materiel and their superior quality, which is relentlessly controlled in peace or war!

In planes, tanks and undersea craft, Seymour Nickel Silver finds a general use. In these same fields, Seymour Phosphor Bronze is preferred for switch contacts and for springs generally because of its high corrosion resistance and its ability to undergo almost endless "fatigue" cycles.

Seymour Nickel Anodes, because of their fine, even disposition, are relied upon by military designers and fabricators for general use and in the atomic field, or for a final plate wherever nickel is specified.

As in previous years, so today, SEYMOUR places the full output of its factories at the service of the armed forces.

THE SEYMOUR MANUFACTURING COMPANY
SEYMOUR, CONN.
Nickel Silver • Phosphor Bronze • Nickel Anodes
NONFERROUS ALLOYS SINCE 1878

Superintendent says "G-E motor



IN CONSTANT USE, this 15-hp, 208/220-volt G-E magnetic motor starter protects motor on a "sticker" machine.



MOST WORK IN THIS MILL IS SPECIAL. G-E STARTERS

REPORTS HARD USAGE,

"About the best production 'insurance' we have," says Mr. Harry F. Rubert, Mill Superintendent of the Beetem Lumber and Manufacturing Company, "is our G-E motor starters.

"We can't afford shut-downs due to burned-out motors which have been overloaded. Not only that, but we must take every precaution against fire.

"In our search for something safe and foolproof to do the job, we decided G-E starters were our best bet.



EXCLUSIVE STRONGBOX COIL can't be damaged by slipping screwdriver—only tool needed for maintenance.

GENERAL ELECTRIC

730-36

starters protect production!"





SHOWN OPERATE AND PROTECT MOTORS ON MORTISER (5 HP), RIP SAW (15 HP) AND BAND SAW (5 HP).

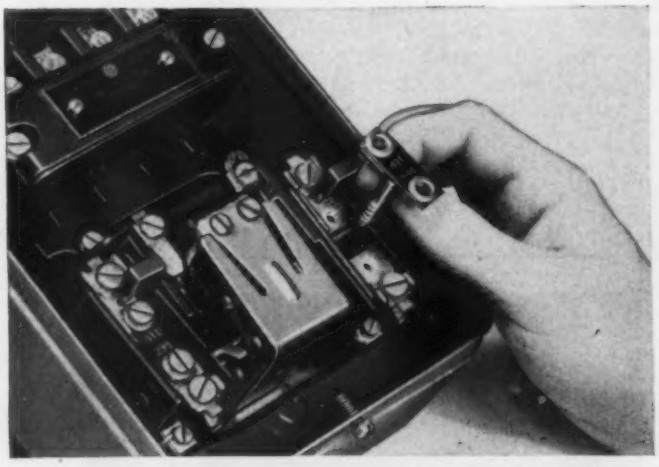
EASY MAINTENANCE

We've got them all over the plant now—and believe me, they get plenty of hard use because our machines are on 'stop-and-go' all the time doing special jobs, and with various loads.

"We've used G-E starters more than three years, and I'll say they are great. They're very easy to install. Maintenance is no problem at all, and they definitely protect production by preventing costly shut-downs."



RIGHT OFF THE SHELF! You can get many models of G-E starters right now from your G-E representative or authorized distributor—in NEMA sizes 0, 1, 2 and 3 for motors up to 50 hp. For more information on magnetic starters, write for bulletin GEA-5153; on manual starters, bulletin GEA-1522. Address *Section 730-36, General Electric Co., Schenectady 5, N. Y.*

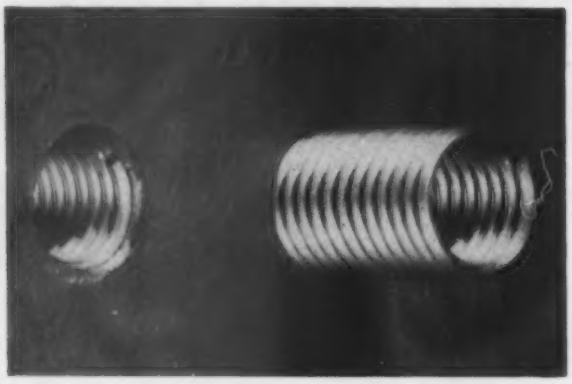


ONLY TWO SCREWS need be removed to install isothermic overload relay to match protection to the motor.

LOOK FOR THIS LABEL **next time you buy a motor starter—easy to read, it has all the information you need to make certain you've got the right starter for the job you want done. Remember—many different ratings are available right from stock.**



Maintenance



Time Savings 80% by Use of Wire Thread Inserts

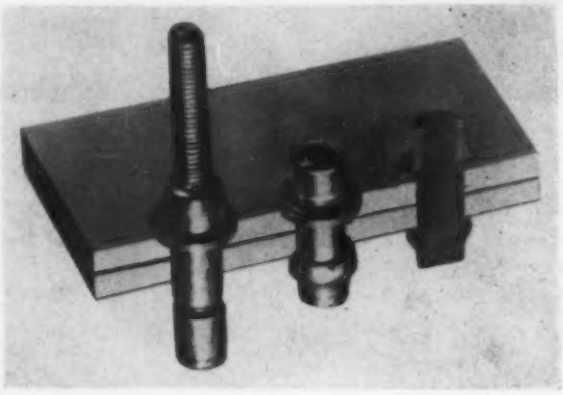
Helical-wire thread inserts are speeding repair of worn and stripped bolster plate threads in machine shops of Stewart-Warner Corp., Chicago. Conservative estimate places time savings at more than 80% compared with conventional methods. In addition to reduction of down-time on 200-odd punch presses, the wire insert method of thread repair lowers cost over 60%. Bolster plates are valued at $100 to $150 each, and prolonged life achieved as a result of wire-insert repair represents an additional economy feature.

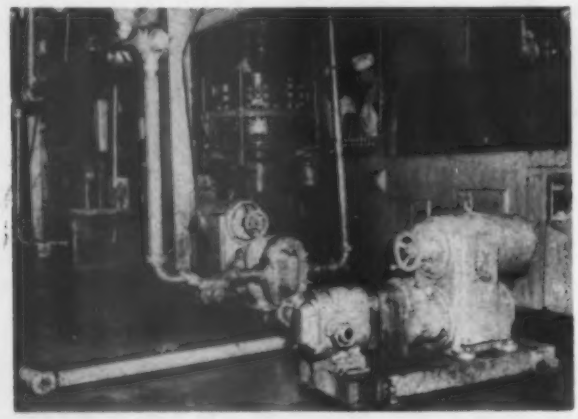
COST SAVING ITEM—409

Repairs Made in 1/74th of Usual Time

Use of blind lockbolts made possible a saving of 659 hours of down-for-repair-time at a major air base in emergency repair applications involving ten different jobs. The entire job was done in nine hours, as compared with estimated time of 668 hours where conventional methods were employed. Planes were able to carry out scheduled missions for which they otherwise would not have been available.

COST SAVING ITEM—410





Magnetic Trap Saves $6300 in Nine Weeks

George J. Germuga, maintenance general foreman, Clapp Baby Food Division, American Home Foods, Rochester, N. Y., estimates that installation of magnetic sanitary trap in apple sauce processing line has saved as much as $6300 in first nine weeks of its service. Weekly savings on pump repairs formerly needed are put at $350 to $400. Another major saving was reduction of as much as 150 to 200 man-hours of downtime weekly at $1.50 per man-hour.

COST SAVING ITEM—411

3 Hour Job Done in 10 Minutes

Large gas company has found it possible to reduce what was formerly a three-hour job to ten minutes in servicing high pressure factory gas meter. First step is removing more than 100 ½" cap screws. Using hand wrenches this job took three hours. It is now done in 10 minutes by use of electric tool. An equivalent amount of time is now saved in reassembling the meter case.

COST SAVING ITEM—412





here's a blue chip investment

that can't miss paying good dividends

Have you recently studied the advantages in changing from 50% liquid caustic soda to 73%? A number of Columbia-Southern customers have made the change and in every instance the results have proved conclusive: A HIGH PROFIT RETURN ON EVERY CARLOAD OF 73% CONSUMED.

Here's an actual case study of three typical Columbia-Southern customers who made the change.

Customer	Cost of 50% liquid	Cost of 73% liquid	Per Cent of Savings	Total $ Savings per year	Cost of equipment and installation necessary to effect such savings	Return on Investment First Year
A	$ 68,240	$ 65,390	4.2%	$ 2,850	$2,650	108%
B	704,600	669,500	5%	35,100	3,500	1003%
C	171,800	164,500	4.3%	7,300	2,055	355%

Cost figures are based on market prices and freight rates effective January 1, 1952

As you will note from the study, the cost of the equipment and installation necessary for this profitable changeover is more than offset by the first year's savings. The small investment earns big dividends.

It will pay you to investigate today the extra profits that may be yours by making this change in your purchase of caustic soda. There is no problem in securing the diluting equipment. The system has been thoroughly tested and proved by over 10 years actual experience in applying high grade 73% caustic soda.

Write today. We will assign one of our technical specialists to discuss your individual case and to make recommendations.

COLUMBIA-SOUTHERN
CHEMICAL CORPORATION
SUBSIDIARY OF PITTSBURGH PLATE GLASS COMPANY

EXECUTIVE OFFICES: Fifth Avenue at Bellefield, Pittsburgh 13, Pennsylvania

DISTRICT OFFICES: Boston, Charlotte, Chicago, Cincinnati, Cleveland, Dallas, Houston, Minneapolis, New Orleans, New York, Philadelphia, Pittsburgh, St. Louis

Maintenance



Efficient, Economical Machine Installation

During the past two years the Chicago Pneumatic Tool Co. of Utica, N. Y. has installed approximately 700 machines on felt anti-vibration pads. Neither bolts nor destructive floor drilling is required. The noise factor is noticeably suppressed, and 60-85 of the transmitted vibration is eliminated. The company finds that this installation is efficient and economical—machines, floors and buildings live longer, and added benefits include increased labor efficiency and productivity.

COST SAVING ITEM—413

Truck Lift Cuts Service Time 40%

This two-post heavy duty industrial truck service lift is installed in plant of the American Can Co., Baltimore, being one of four in American Can Company plants. Industrial fork lift trucks are built low, making it impossible for mechanic to crawl under them. Use of lift provides the fastest way to get the vehicle off the ground and expose under parts for mechanical attention or lubrication. It is estimated that use of lift has reduced service time as much as 40% in lift truck maintenance.

COST SAVING ITEM—414





New Hose Saves $300 Annually

Hose formerly used on dust handling application at the Brown Manufacturing Co., Concord, N. C., lasted only three months. It was replaced with hose designed for dust handling. After ten months of service J. S. Baucom, overseer of carding, reports that the hose has saved over $300 in maintenance costs besides providing the flexibility needed to reach into the small openings from which dust and lint are difficult to remove.

COST SAVING ITEM—415

Imagine doing business with 1890 methods!



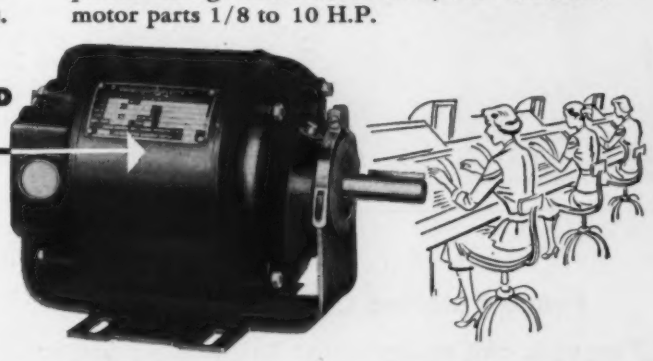
The bookkeeper with his eye shade and sleeve garters, at a high top desk, typified the tempo of business in the Gay 90's. His was a tedious and exacting job. Motorized equipment such as adding machines, calculators, bookkeeping machines, tabulating machines, postage meters, and letter openers, to name a few, were still in the future.

During this period Emerson-Electric was founded. Since then motors have been supplied to scores of leading manufacturers of labor-saving devices.

They staked the reputation of their products on Emerson-Electric motors, and with the passing years became nationally known for dependable service.

Consider this 62-year-old reputation for dependability and efficiency, earned by Emerson-Electric motors for use in business, on the farm, in the home and in industry. Your inquiry is invited on the complete line of standard motors in horsepower ratings from 1/20 to 5, and hermetic motor parts 1/8 to 10 H.P.

MODERN BUSINESS **IS POWERED WITH** ELECTRIC MOTORS





Write for these Emerson-Electric Motor Data Bulletins

Manufacturers requiring motors 1/20 to 5 h.p. can profitably use these reference guides. Specifications, construction and performance data are included for these motors:

- ☐ M113-A Capacitor-Start
- ☐ M113-B Split-Phase
- ☐ M113-C Integral
- ☐ M113-D Fan-Duty
- ☐ M113-E Oil-Burner
- ☐ M113-F Jet Pump
- ☐ M113-G Blower

THE EMERSON ELECTRIC MFG. CO., St. Louis 21, Mo.

EMERSON Emerson Electric **ELECTRIC**

MOTORS • FANS APPLIANCES

LEADERS IN THE FAN AND MOTOR INDUSTRY SINCE 1890

Maintenance



Power Sweeper Saves 75% in Manhours

Pan American Airways reduced sweeping manhours 75% with a heavy duty industrial power sweeper like the one illustrated. Formerly a 4-man crew required 32 manhours a day to clean the company's Miami Warehouse. Now, with the vacuum-equipped sweeper, the entire area is swept in 8 manhours daily. Cylindrical brush hurls debris and dirt into a dirt pan. Powerful vacuum pulls lighter dirt and dust into a fabric bag.

COST SAVING ITEM—416

Powder Actuated Tool Drives Studs in One-Fifth the Time

In one-fifth the time required in conventional installations, studs were driven into 2-inch concrete subfloor to install plumbing fixture carrier in building at Ohio State University, with a powder actuated tool. The tool requires no electrical or compressed-air connections.

COST SAVING ITEM—417





50% More Work with 50% Less Chain

A 200-kw generator on Standard Dredging Company dredge boat "Diesel" required a 12" wide silent chain drive. A new 300-kw generator was installed, which is driven by a 6" wide chain of a new type. That's 50% more work with 50% less chain. The new chain also gives one-third longer service, and cuts operating costs per hour up to 50%.

COST SAVING ITEM—418

Fence Painting Costs 25% Less

Two men, each equipped with long-handled dust or floor brush face each other on opposite sides of fence. Small trough slightly longer than the brush serves as paint reservoir. The men apply paint to the fence with a diagonal motion, following the strands of wire. Application is 25% less expensive than hand brushing. Bayonets, railings and posts are sprayed.

COST SAVING ITEM—419



New *Life-Line* Safety Switch

Stands up...Stands out!





FULL LINE—FOR EVERY APPLICATION

Looking for a chance to cut idle machine time and unpredictable maintenance load? Here's a performance-proved opportunity—with the newly strengthened, newly styled Westinghouse Life-Line Safety Switch.

For two reasons. First, precise and positive action protects your circuits and equipment when emergency demands it. MICARTA® crossbar, now 50% to 100% stronger, assures unit action of contact blades and follow-through action of the operating mechanism.

Second, Westinghouse Switches are long lived—diamond-pointed break jaw and extended blade eliminate burning of contact areas. "De-ion®" Arc Quenchers suffocate arcs in a twinkling. One-piece copper construction means fewer current-carrying joints and loose connections, resulting in less wattage loss.

Whether fused for circuit protection or unfused as a disconnect, there is a complete line of safety switches in types A, C and D for NEMA Type 1 applications.

Your Westinghouse Distributor will be glad to help you. Or write for Booklet B-5457, Westinghouse Electric Corporation, Box 868, Pittsburgh 30, Penna.

J-30083

YOU CAN BE SURE... IF IT'S

Westinghouse

Life-Line

SAFETY SWITCHES

Maintenance



Gas Alarm System Warns of Propane Leakage

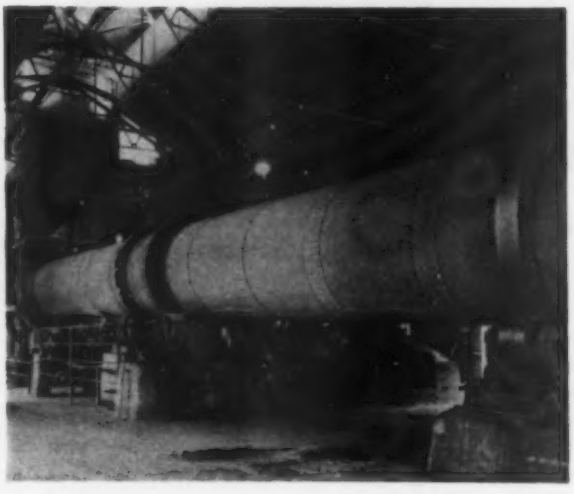
On several occasions the combustible gas alarm system shown at right, has detected and warned of propane leakages in piping, pumps or pressure vessels at the Cincinnati plant of Refinol, Inc. which uses this highly volatile and combustible gas in decolorizing animal, vegetable and marine oils and fats employed in the manufacture of soap, cosmetics and fatty acids. Because the propane is odor-free it is difficult to detect otherwise.

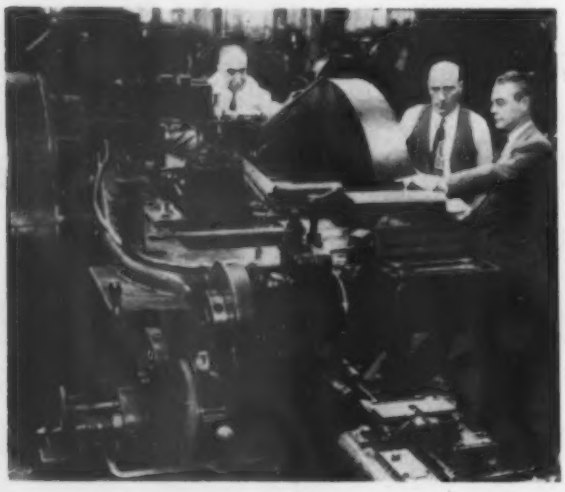
COST SAVING ITEM—420

Lubricant Saves $2,098.16 in Seven Months

Conventional oil of density recommended had been used in the bearings of kraft mill lime kiln, The Brown Paper Company, Berlin, N. H. In seven month period, cost of lubricant was $2,134.00. Changing to a grease type lubricant with good adhesive qualities, high resistance and high film strength, only 128 pounds of the new lubricant were used, the cost being but $35.84.

COST SAVING ITEM—421



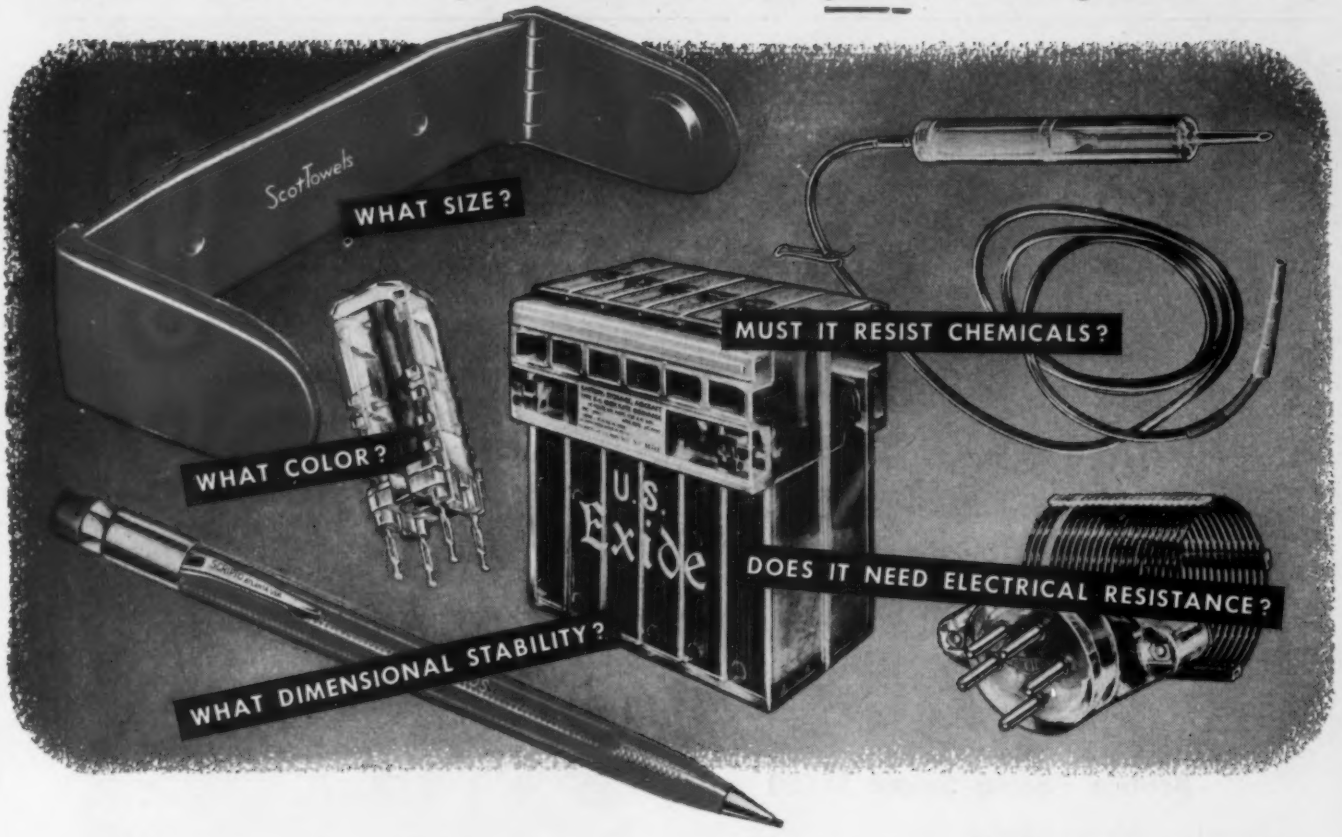


Save 1108 Quarts of Oil in 21 Days

An automotive manufacturer in Detroit discovered that consumption of lubricating oil for machines in cold heating department was reaching abnormal proportions. Following a lubrication survey, an extreme-pressure oil with high "stay put" properties was tested for a 21 day period. At the end of that time the oil consumption was checked, revealing that 1,108 quarts of oil had been saved. This was attributed to the quality and long life of the oil plus revised oiling adjustments made possible.

COST SAVING ITEM—422

What are the requirements for your new product?



It will pay you to investigate Koppers Polystyrene!

WHEN YOU ARE CONSIDERING your product's appearance, durability, use, customer appeal and final cost, you should also consider the unusual adaptability of Koppers Polystyrene. It can be molded in practically any shape . . . its dimensional and heat stability assure exact fit between related members . . . it has high dielectric strength . . . beauty and stability of its color are unrivaled.

From the technical viewpoint, the excellent molding characteristics of Koppers Polystyrene result in fewer weld lines, improved strain pattern, more uniform plasticizing of material in the cylinder, faster molding cycles resulting from setting at higher temperatures, and a more uniform cylinder feed.

Write for further information. As always, we want to work with you to obtain the best results from your use of Polystyrene . . . to solve your particular molding problems . . . to design new products to be made from Koppers Polystyrene.

Koppers Polystyrenes give you all these advantages

Low cost
Light weight— more pieces per pound
Excellent dimensional stability
Excellent electrical properties
Heat-distortion temperature range: 165°- 200°F.
Good chemical and moisture resistance
Tasteless and odorless
Unlimited color range

Koppers Plastics make Many Products Better and Many Better Products Possible.

KOPPERS

Koppers Plastics

KOPPERS COMPANY, INC., Chemical Division, PITTSBURGH 19, PA.

SALES OFFICES: NEW YORK · BOSTON · PHILADELPHIA · CHICAGO · DETROIT · LOS ANGELES

Maintenance



Braze-Welding Cylinder Saves $4000

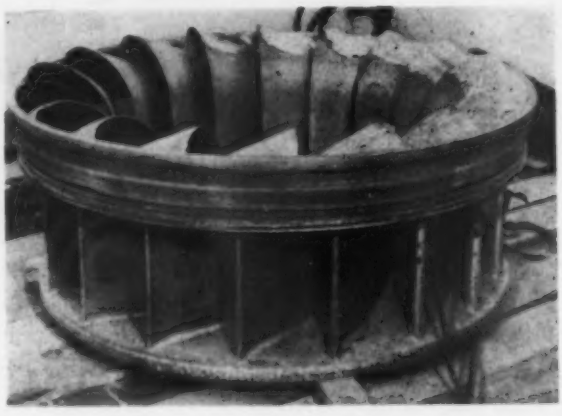
Cylinder of 1904 railroad locomotive used by a lumber company cracked as result of broken piston. Replacing the cylinder would have cost over $4,000 and involve months of delay. By using braze welding, the engine was put back in service within 20 hours. Repairs were made without dismantling at a cost of $138 for materials, labor and overhead.

COST SAVING ITEM—423

Bronze Facing Saves $4800

Four-ton turbine runner in plant of Western Power Company was badly cavitated and eroded. Bronze facing with phosphor bronze electrode saved this company $4,800. A new runner costs $6,000, while the cost of reconditioning the runner by welding was only $1,200. The bronze weld deposit is more resistant to cavitation and erosion than the original metal.

COST SAVING ITEM—424



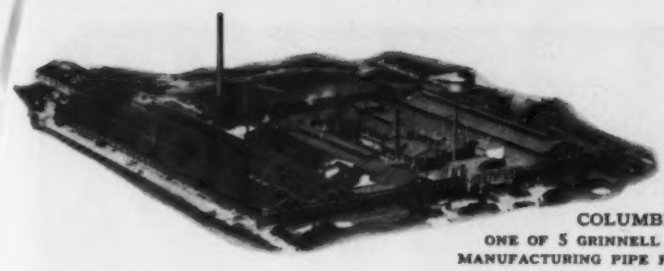


Sweeper Saves $37,000 in Three Years

The U. S. Rubber Company's Detroit plant reports a saving of $37,000 in three years with a heavy duty industrial power sweeper. It does the work of a 4-man crew. Hand sweeping costs for three years are placed at $42,000. Power sweeping costs for the same period are only $5,000 including depreciation and upkeep of the machine. Sweeper's capacity is said to be 60,000 sq. ft. or more per hour.

COST SAVING ITEM—425

(Please turn to page 452)



COLUMBIA, PA.
ONE OF 5 GRINNELL PLANTS
MANUFACTURING PIPE FITTINGS

GRINNELL

complete-line manufacturer of high quality PIPE FITTINGS



offers you...

- Complete line of high quality malleable iron and cast iron pipe fittings.
- Large stocks of pipe fittings — mass-produced by skilled workers using modern equipment.
- Dependability — the result of finest materials, equipment and methods; assured by rigid production control and triple inspection.
- Coast-to-coast network of branch warehouses and distributors — making available local stocks of Grinnell pipe fittings.

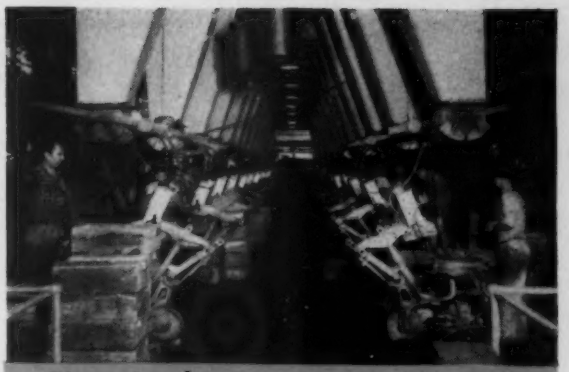
WHENEVER YOU ORDER PIPE FITTINGS,
CALL YOUR NEARBY GRINNELL WAREHOUSE OR DISTRIBUTOR



ONE OF 30 GRINNELL BRANCH WAREHOUSES

GRINNELL

WHENEVER PIPING IS INVOLVED



Dimensional accuracy assured by finest equipment and modern methods of mechanized molding.



Smooth inside finish obtained by the use of the best core sand and the employment of superior core making equipment.



Superior metal, poured into molds on continuous conveyors, gives Grinnell pipe fittings extra strength . . . extra ruggedness.



Accurate chamfer and precision threads, produced by modern tapping machines, provide easy starting and tight joints.

Grinnell Company, Inc., Providence, Rhode Island • Coast-to-Coast Network of Branch Warehouses and Distributors

pipe and tube fittings • welding fittings • engineered pipe hangers and supports • Thermolier unit heaters • valves
Grinnell-Saunders diaphragm valves • pipe • prefabricated piping • plumbing and heating specialties • water works supplies
industrial supplies • Grinnell automatic sprinkler fire protection systems • Amco air conditioning systems

NOW!

5 Basic Types of Thermoid Hose Do The Work of Eighteen!

Thermoid
Industrial
Rubber Products
Quality Value Service

Now there's a new Thermoid line of molded hose, designed to cut handling time and storage costs 70% or more in a wide variety of industrial and commercial uses!

Five superior basic types of Thermoid Hose now do the jobs which formerly required eighteen different types!

And, Thermoid's new standard color identification eliminates confusion in storage and stock selection.

Get the benefits of simplified buying . . . simplified inventory . . . simplified handling with Thermoid Hose that's ready "on-the-spot" for replacement or emergency use.

THERMOID'S "BASIC FIVE"

Versaflex, Versicon, Aquair, Utility, Powerflex, now combine simplification and versatility with Thermoid top-quality construction.

VERSAFLEX

Multi-purpose hose built to withstand higher pressures. Especially recommended for butane, propane, insecticides, oil base sprays and for use as booster hose. Oil-proof tube and cover, high tensile rayon reinforcement. Color code: *Red*.

★

VERSICON

Multi-purpose hose for virtually every type of air, gas or liquid. Oil-proof tube and cover, high tensile rayon reinforcement. A true all-purpose hose. Color code: *Brown*.

★

AQUAIR

Rugged, dependable hose for handling air, water, welding gases. Rubber tube and cover, high tensile rayon reinforcement. Color code: *Green**.

** Also furnished with Red cover for acetylene.*

★

UTILITY

Most practical hose for air, water and illuminating gases at pressures from 75 to 125 psi. Rubber tube and cover, rayon reinforced. Color code: *Black*.

★

POWERFLEX

Designed specifically for super heated steam at pressures from 100 to 200 psi. Mandrel built, with steel wire braid and asbestos yarn reinforcement. Color code: *Black*.



In addition, Thermoid manufactures superior quality hose in constructions for handling paint, gasoline and for other specific uses.

Get full details about the new "Basic Five" types of Thermoid Hose. Catalog contains complete information and tells you how to select the proper hose for hundreds of different applications. Ask for your copy of Catalog No. 3680. It's free.

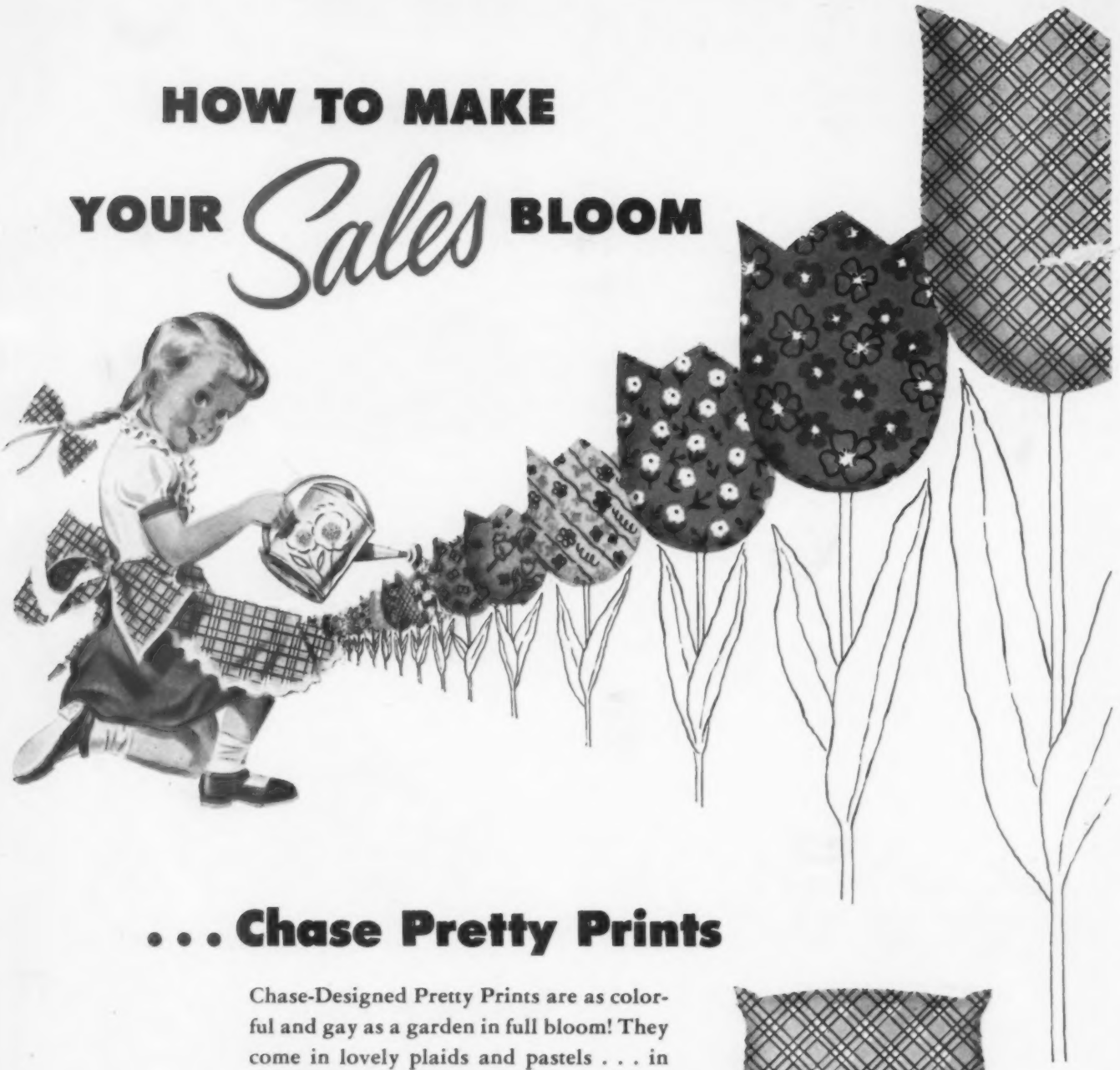
Conveyor & Elevator Belting • Transmission Belting
F.H.P. & Multiple V-Belts • Wrapped & Molded Hose

Thermoid

Rubber Sheet Packings • Molded Products
Industrial Brake Linings and Friction Materials

Thermoid Company • Offices & Factories: Trenton, N. J., Nephi, Utah

HOW TO MAKE YOUR *Sales* BLOOM



. . . Chase Pretty Prints

Chase-Designed Pretty Prints are as colorful and gay as a garden in full bloom! They come in lovely plaids and pastels . . . in solids, florals, and geometrics! All designed to appeal to housewives—to increase the demand for your fine product. Your Chase Salesman has samples of Chase Pretty Prints. He'll be glad to show them to you!

★ ★ ★

Write for free booklet, "Worth Looking Into." It is packed with facts on better packaging.



CHASE since 1847 BAGS

for Better Bags...Better Buy Chase!

CHASE BAG CO. GENERAL SALES OFFICES: 309 W. JACKSON BLVD., CHICAGO 6, ILL.

BOISE • DALLAS • TOLEDO • DENVER • DETROIT • MEMPHIS • BUFFALO • ST. LOUIS • NEW YORK • CLEVELAND • MILWAUKEE
PITTSBURGH • KANSAS CITY • LOS ANGELES • MINNEAPOLIS • GOSHEN, IND. • PHILADELPHIA • NEW ORLEANS • ORLANDO, FLA. • SALT LAKE CITY
OKLAHOMA CITY • PORTLAND, ORE. • REIDSVILLE, N. C. • HARLINGEN, TEXAS • CHAGRIN FALLS, O. • WORCESTER, MASS. • CROSSETT, ARK. • SAN FRANCISCO

Office Equipment and Supplies section of PURCHASING Magazine

May, 1952



Record Typing Department, The Companion Companies, Omaha, Nebr. Courtesy of International Business Machines Corp.

PURCHASING MAGAZINE—A CONOVER-MAST PUBLICATION
205 EAST 42ND STREET, NEW YORK 17, N. Y.

Minimum Yearly Saving $500,000

Spending $6,000,000 Annually

By W. D. Bish, Purchasing Agent, Office Standards Department, Westinghouse Electric Corporation, Pittsburgh.

WE at Westinghouse have long had an intimate picture of the importance of executive tools—office machines, office furniture, and appliances. My department over the years has had full responsibility for the procurement of all administrative tools and supplies for the 24 major divisions and 70 plants of the company throughout the United States. These responsibilities are set forth in our company manual, as follows:

A. Office equipment:

Select machines and furniture for additional or replacement use.

Determine type and quality of stationery supplies.

Investigate development and improvement of equipment and appliances.

Maintain inventory of new and used equipment.

Negotiate transfer of office equipment with departments.

Maintain repair and refinishing operations for machines, furniture and miscellaneous supply items.

Maintain records of all office machines.

Interworks billings on new and used equipment.

Advisor in all office equipment and stationery problems.

B. Forms:

Analyze all requests for printed forms.

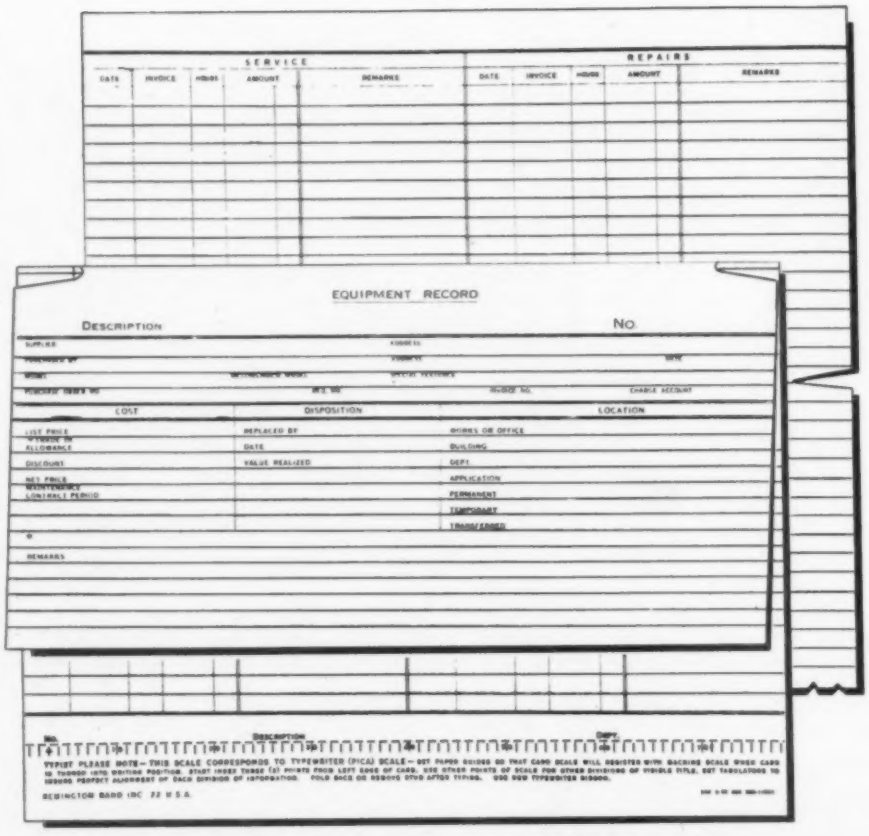
Advisor in all forms problems.

Design forms.

Select paper for quality, size and color.

Maintain file of all company forms.

In carrying out these assigned duties, we are governed by two basic Westinghouse programs, namely—sound inventory control, and the company-wide cost reduction program which was quite fully explained in the June 1951 issue of PURCHASING Magazine.



Office Machine Record Card. There are 25,000 cards on file.

I learned early in the 22 years that I have been responsible for this buying that without unceasing vigilance and control plus complete and carefully maintained records, that the door is wide open for untold waste in idle equipment and the purchase of unnecessary equipment. Also, that lack of standardization, poor inventory control, unrepaired equipment, and obsolescence are wastefully expensive.

I should say that were we today called upon to replace all of the office equipment now in use in our offices and plants, the cost at current prices would approximate $30,000,000. Obviously we have a huge investment to conserve, and to judiciously add to. It represents a tremendous assortment of many kinds of mechanical units, furniture cabinets, appliances and supplies.

In addition to the highly specialized equipment used in certain departments, such as our accounting and statistical departments, the value of which runs into hundreds

for Office Equipment and Supplies



W. D. Bish

of thousands of dollars, our records show that throughout the organization we have 40,000 desks, 60,000 file cases, and 8,000 typewriters. Other basic units are in proportion. In fact our office machine records include 25,000 cards. Each card gives a complete description of a machine—kind, where used, specification, cost, manufacturer's serial number, and data on repair costs.

It is our responsibility to see that no office equipment of any kind is purchased for or issued to anyone unless there is an established need therefor. And as indicated we alone are responsible for the control of and issue of new forms.

All of this is a big order, yet with the aid of management-backed policies and controls that we have evolved through the years, I feel it safe to say that we have pin-point control over every piece of equipment used in our many offices. This control extends to the stocks in our central stationery department.

In this connection I might say that Westinghouse is mechanically minded so far as office operations are concerned. Any job that can be done by machine is done by machine. I doubt that any other company adheres as closely to this policy as we do. This means that we in Central Purchasing must be qualified to pass upon each and every order for office machines, equipment and supplies of any kind.

Big Assignment—Small Staff

Of necessity we are so qualified, and it may surprise the reader to know that the administration of this big assignment is carried out by a comparatively small staff. We have but two buyers, who with other staff people bring our total organization to six people, including my secretary. Two of these members are best termed equipment analysts. One has been with us 22 years, and the other 14 years. They are intimately acquainted with the varied types of office equipment used in every office in the Westinghouse organization, whether in accounting, engineering, general offices or other departments. They are responsible for the selection and application of all machines and furniture throughout the entire organization. It is their job to determine the type of equipment that is to be applied on any requisition that is directed to their attention.

The office machine inventory includes almost every kind of general equipment used in industry.



The overall expenditures of our department approximate $6,000,000 annually, of which some $2,000,000 is for office machines and furniture which come under the description of appropriation items, that is, expenditures of $50.00 and upwards which are covered by budget appropriations in the overall budget approved by the Westinghouse board of directors. And we are spending another $2,000,000 annually for various budget items including snap-out forms, interleaved forms, etc., that the Westinghouse printing plant at Trafford, Pa. is not equipped to handle. The rest of the annual expenditure covers a myriad of accessory, supply and sundry items, and contract services. We also have an office machines repair department, and a furniture and equipment repair department.

These repair departments are of vital importance, for they enable us

to keep machines and equipment in tiptop condition, and in general have made it unnecessary to spend large sums of money for new equipment and commercial repair services.

Hugh Annual Saving

I should say that these departments in conjunction with forms control and our precision control over the issue of equipment and supplies, are enabling us to save a minimum of $500,000 annually. Other factors contributing to this saving are standardization, rigid control over small stationery stores, and the reissue of rehabilitated office furniture.

The question may arise as to how this precision control is effected. It is made possible by the practical experience we have gained, company policies, the thorough cooperation of all managerial and department heads, our complete records, and the qualifications of the men on our purchasing staff.

We are constantly checking on new developments in office machines, equipment and accessories, and are always experimenting with an eye to possible use of new equipment that may be adapted to our particular needs. If a new product announced in an advertisement, or trade news, or the flood of promotional literature that flows over our desks is felt to be worthy of special attention, we immediately investigate it. Our purpose is to anticipate any request that may be made upon us for any kind of equipment.

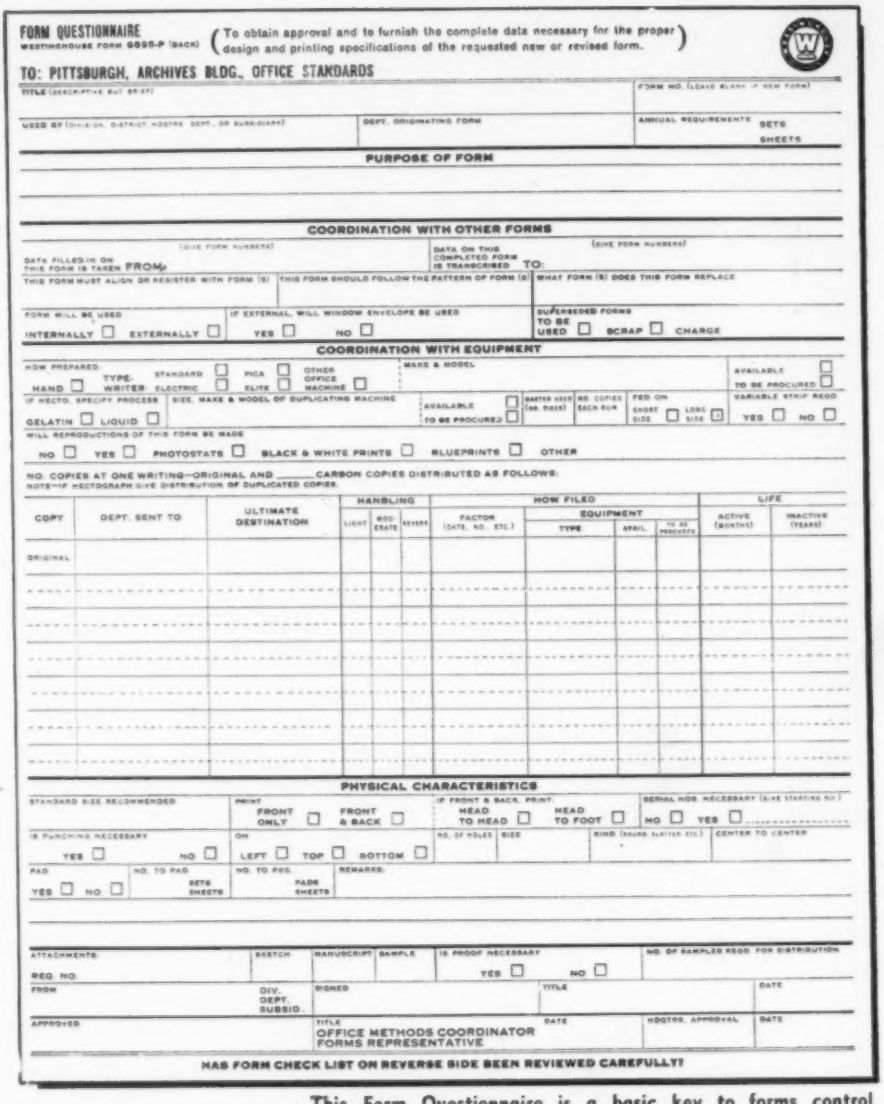
Furthermore, in order that our buyers may have a clear understanding of how things are made, and the materials that go into them, and be familiar with good construction, they are constantly visiting manufacturers' plants. At a recent visit to a business machine plant we learned of an electronically controlled and operated office machine that will revolutionize current methods in certain departments. We are not at liberty to give out information in regard to this new equipment. However, when it is duly announced by the manufacturer within the next year or two, our department heads concerned will be prepared to give it thorough consideration. It is this constant attention to current and new developments in the field that enables us to work closely with our own people and with our suppliers.

Office Machine Control

It is a company policy that all requests for office machines and equipment must pass through our Department. Upon receipt of a requisition for a certain type of machine, for instance, one of our analysts will study the requirements, and make determination as to whether a used or rebuilt machine that we may have in stock will do. This applies to all types of equipment, whether it be accounting machines, typewriters, adding machines, calculators, general office desks or equipment for executive offices.

In our Pittsburgh warehouse, we have a rather diversified yet well balanced stock of both new and used equipment. Standard records are maintained on this inventory, and thus we always have a ready picture of available equipment.

The refinishing, rehabilitation and reissue of used furniture has been a source of enormous savings. In our Pittsburgh warehouse we have a crew of men who are experts at repairing and refinishing office furniture. All surplus office equipment in any Westinghouse office or department is reported to us. Under company regulations surplus equipment may not be held in an office or plant because of someones whim that it may be needed sooner or later. They either need it or they don't need it. Obviously it is sheer extravagance to buy new equipment at today's prices when useable used equipment is available. If changes in a department release equipment, that equipment is subject to our instructions as to disposal or shipment to the Pittsburgh warehouse.



FORM QUESTIONNAIRE
WESTINGHOUSE FORM 6999-P (BACK) (To obtain approval and to furnish the complete data necessary for the proper design and printing specifications of the requested new or revised form.)

TO: PITTSBURGH, ARCHIVES BLDG., OFFICE STANDARDS

TITLE (DESCRIPTIVE BUT BRIEF) | FORM NO. (LEAVE BLANK IF NEW FORM)

USED BY (DIVISION, DISTRICT, HOSTRS DEPT., OR SUBSIDIARY) | DEPT. ORIGINATING FORM | ANNUAL REQUIREMENTS: SETS / SHEETS

PURPOSE OF FORM

COORDINATION WITH OTHER FORMS

DATA FILLED-IN ON THIS FORM IS TAKEN FROM: (GIVE FORM NUMBERS) | DATA ON THIS COMPLETED FORM IS TRANSCRIBED TO: (GIVE FORM NUMBERS)

THIS FORM MUST ALIGN OR REGISTER WITH FORM (S) | THIS FORM SHOULD FOLLOW THE PATTERN OF FORM (S) | WHAT FORM (S) DOES THIS FORM REPLACE

FORM WILL BE USED: INTERNALLY ☐ EXTERNALLY ☐ | IF EXTERNAL, WILL WINDOW ENVELOPE BE USED: YES ☐ NO ☐ | SUPERSEDED FORMS TO BE: USED ☐ SCRAP ☐ CHARGE

COORDINATION WITH EQUIPMENT

HOW PREPARED: HAND ☐ TYPE: STANDARD ☐ WRITER: ELECTRIC ☐ PICA ☐ ELITE ☐ OTHER OFFICE MACHINE ☐ | MAKE & MODEL | AVAILABLE ☐ TO BE PROCURED ☐

IF HECTO, SPECIFY PROCESS: GELATIN ☐ LIQUID ☐ | SIZE, MAKE & MODEL OF DUPLICATING MACHINE | AVAILABLE ☐ TO BE PROCURED ☐ | MASTER USED (NO. SHEETS) | NO. COPIES EACH RUN | FED ON: SHORT SIDE ☐ LONG SIDE ☐ | VARIABLE STRIP FEED: YES ☐ NO ☐

WILL REPRODUCTIONS OF THIS FORM BE MADE: NO ☐ YES ☐ PHOTOSTATS ☐ BLACK & WHITE PRINTS ☐ BLUEPRINTS ☐ OTHER

NO. COPIES AT ONE WRITING—ORIGINAL AND ____ CARBON COPIES DISTRIBUTED AS FOLLOWS:
NOTE—IF HECTOGRAPH GIVE DISTRIBUTION OF DUPLICATED COPIES.

COPY	DEPT. SENT TO	ULTIMATE DESTINATION	HANDLING: LIGHT	HANDLING: HOD-CRATE	HANDLING: REVERSE	HOW FILED: FACTOR (DATE, NO., ETC.)	HOW FILED: EQUIPMENT: TYPE	HOW FILED: EQUIPMENT: AVAIL.	HOW FILED: EQUIPMENT: TO BE PROCURED	LIFE: ACTIVE (MONTHS)	LIFE: INACTIVE (YEARS)
ORIGINAL											

PHYSICAL CHARACTERISTICS

STANDARD SIZE RECOMMENDED | PRINT: FRONT ONLY ☐ FRONT & BACK ☐ | IF FRONT & BACK, PRINT: HEAD TO HEAD ☐ HEAD TO FOOT ☐ | SERIAL NOS. NECESSARY (GIVE STARTING NO.): NO ☐ YES ☐

IS PUNCHING NECESSARY: YES ☐ NO ☐ | ON: LEFT ☐ TOP ☐ BOTTOM ☐ | NO. OF HOLES | SIZE | KIND (ROUND, SLOTTED, ETC.) | CENTER TO CENTER

PAD: YES ☐ NO ☐ | NO. TO PAD: SETS / SHEETS | NO. TO PERF: PADS / SHEETS | REMARKS:

ATTACHMENTS: SKETCH | MANUSCRIPT | SAMPLE | IS PROOF NECESSARY: YES ☐ NO ☐ | NO. OF SAMPLES REQD. FOR DISTRIBUTION

REQ. NO.

FROM | DIV. DEPT. SUBSID. | SIGNED | TITLE | DATE

APPROVED | TITLE: OFFICE METHODS COORDINATOR / FORMS REPRESENTATIVE | DATE | HDQTRS. APPROVAL | DATE

HAS FORM CHECK LIST ON REVERSE SIDE BEEN REVIEWED CAREFULLY?

This Form Questionnaire is a basic key to forms control. Properly filled out it gives the forms engineers a complete description of form, how it is to be used along with informa-

"Contact Man"

Query may be made as to how we keep check on such changes. This is accomplished through what we term "contact men" in our divisions or plants. He is appointed by the plant manager, and is usually a member of the staff who has been selected (and trained) to supervise

FORM CHECK LIST (A quick and easy method of checking the efficiency and economy of any new or revised form BEFORE placing the printing order.)

INSTRUCTIONS—Review each of the following items, point by point. A check mark (✓) in the O.K. column indicates satisfactory coverage. If any question exists, place a question mark in the (?) column for investigation and clearance. Findings and details can be recorded in the "Remarks" space below.

NECESSITY

	OK	?		OK	?
1 Has the entire system been checked, and a procedure written, making clear the purpose and routine of this form?			5 Are all copies necessary? Could a copy be routed from one department to another and thereby eliminate one or more copies?		
2 Is this new form necessary? Or is there some existing form (see microfilm) which could be adopted as is or with some revisions?			6 Have the actual users been consulted for suggested improvements? Has everyone responsible for the form or the form system approved it?		
3 Can the data furnished by this form be combined with some other form, or can some other form be eliminated by or consolidated with this form?			7 If a hectograph form is contemplated, are you certain that it is necessary to use the hectograph process to secure the number of copies that are absolutely required?		
4 Could the period covered be lengthened from daily to weekly, to monthly, etc.?					

DESIGN

	OK	?		OK	?
8 Is the size a standard, and not any larger than necessary? Is it practical from a filing, mailing and handling standpoint?			16 Does the title of the form clearly but briefly indicate its purpose?		
9 Have sufficient margins been allowed for printing, office machine fill-in, duplicating, binding and filing?			17 Would consecutive serial numbers serve a useful purpose?		
10 Will routing or handling instructions printed on each copy be helpful?			18 Is there a space for date of issue, and is it properly located?		
11 If an external form, should it be designed for use in a window envelope?			19 Is all fixed information to be printed, so that only variable items need be filled in?		
12 Should it be designed as a self-mailer?			20 Are items properly grouped for other departments to fill in or refer to?		
13 Is the spacing, both horizontally and vertically, correct for fill-in? (Use Form Layout Guide, Form 17310.)			21 Are items properly located to make reference easy when filed or bound?		
14 Is the form design streamlined for straightaway typing, minimum number of tab stops, roll-backs and carriage returns?			22 Are the important items properly emphasized by prominence and location?		
15 If this form is to take information from or pass information to another form, are the forms coordinated? Be sure to show the form numbers of these forms on the questionnaire.			23 Have spaces been provided for signatures and approvals with date spaces for each?		
			24 Have you indicated the number of digits or typical fill-in (use colored pencil)?		

SPECIFICATIONS AND VOLUME

	OK	?		OK	?
25 Are detailed printing specifications complete? (Such as punching, perforating, numbering, padding, proofs, samples, etc.)			28 Has an order point been properly established with due regard for the time required to secure a new supply? (Depends on type of form and source of supply—See Forms Manual Sec. V—Par. E)		
26 Is the quantity being ordered consistent with the actual requirements and with full allowance for initial distribution?			29 Has disposition of old and/or superseded forms been given on Forms Questionnaire?		
27 If hectograph is involved, has consideration been given to deterioration? (Normal supply — six months)					

Pt. No.	Remarks on Points Questioned - (?)

Be sure that FORM QUESTIONNAIRE on reverse side is completed

SIGNATURE_____ DATE_____

tion as to necessity, format and design features and requirements. All proposed printed forms must be submitted to the Forms Engineering Group for approval.

the use and application of new equipment, and arrange for the disposal of used equipment as instructed by our department.

We will not accept a request for any kind of office equipment for any plant or division or office, that does not bear the approval of the "contact men." All of our personal contacts and correspondence about requests for or release of equipment are with this man. As indicated, he has received special training for this work, and he is expected to keep his eyes and ears open to see that company regulations concerning office equipment are not evaded. On the whole this arrangement has been quite successful, given us good control of office equipment, and make for big savings.

Instructions are issued by this office as to whether surplus equipment should be shipped to the warehouse, to another plant or department, or held pending further instructions. If we get word there is a surplus desk at say our Chicago plant, we may instruct Chicago to hold it, or ship it to some nearby plant that may need it. It is not economical to ship material to Pittsburgh, and possibly have to ship it to the former area within a short time. The contact men keep close check on surpluses, and just recently one of them reported some $37,500 worth of surplus at one of our larger plants.

We maintain an accounting operation on surplus equipment making due credits and charges for equipment that may be released or transferred. Any used equipment coming into our stock is credited to the department that released it, and in turn charge is made against the department to which it may be issued. Usually departments are quite prompt in reporting surplus to the contact men, because of its credit value.

Our warehouse inventory of office machines includes almost every type of general equipment used in industry. Our aim is to keep this inventory at a sane working, cash-level basis. A couple of years ago we made considerable saving over and above warehouse costs by anticipating the rises that took place in the costs of various office machines, and stocking up accordingly.

Standardization Cuts Costs

Standardization has proved an invaluable factor in helping us to keep equipment costs down. We have adopted definite standards for all office machines and other equipment. We will not buy machines that do not conform to the standards we have developed through work performance. This does not mean that we will not consider new equipment. Just the reverse we welcome information about new equipment that is a means for conserving time, increasing production and efficiency. If a salesman seeks to acquaint us with a new kind of equipment, we are glad to give it consideration, and if feasible, we will give his machine a thorough trial to determine whether it is more efficient than machines now in use. In other words, we buy products, not sales stories. Company regulations provide that demonstration equipment cannot be put in service in any department, without the approval of this office.

I made previous reference to our office machine repair department. Here we make major repairs and overhauls, and even rebuild certain machines. This department, too, is the source of savings running into untold thousands of dollars. It has proved profitable for the reason that we have sufficient volume of work to operate it economically; furthermore, we are able to do this work at half of the usual commercial prices. Not only are we able to push repair work through quickly (no two or three weeks of waiting) but by maintaining office equipment in good repair, it is not necessary that we carry a large inventory of typewriters and other office machines for emergency use.

As stated, standardization has been fundamental in all of our operations, and has proved especially practical from the standpoint of desks, filing cabinets, storage cabinets, and other general office equipment. These standards establish such basic factors as size, color and construction. All offices thus have certain types of equipment for identical uses, and present a uniform appearance. Standardization has



Westinghouse Order of Merit

By order of the Board of Directors, and signed by the Chairman of the Board and the President:

"In recognition of the distinguished service of Wallace D. Bish for his skill in the application of machines to complex clerical tasks, for his ability to provide better records at less cost, and for his many contributions to the improvement of office systems throughout the Westinghouse Company,

"The Silver W and this certificate of the Order of Merit of Westinghouse Electric and Manufacturing Company are awarded."

The foregoing is the text of the Westinghouse Order of Merit awarded Mr. Bish several years ago. It is the highest award granted by Westinghouse for outstanding company services. Mr. Bish also was given a War Production Award by the War Production Board, World War II, as a member of the Built-Up Mica Industry Advisory Committee.

Editors.

helped us to make savings through quantity buying, and has also been a factor in keeping our maintenance and repair costs at a minimum.

Filing cabinets are bought on specifications that we have established. Practically all of our filing cabinets are of metal construction. By establishing our own standards, we are able to buy competitively and save through quantity buying.

We have adopted the five-drawer file cabinet as standard. On new installations we are using the five drawer cabinets because of space economy. Four five-drawer cabinets will give 20 file drawers in less floor space than five four-drawer cabinets. As we have some rather large filing installations, this is an important factor. When we fill requisitions with four-drawer cases, it is done only to match existing installations. We also have found that we save considerable by scrutinizing requisitions for file cases with drawer locks. Locks are a necessity in but few instances, and inasmuch as our department is familiar with the filing requirements in the different divisions, we generally know whether the installation of lock-drawer cases is justified. If there is doubt as to how a requisition should be filled, we get in touch with the plant "contact man."

All types of office machines are repaired, overhauled, or rebuilt in the repair department.



Rigid Stationery Control

The central stationery department serves the entire company. Here are stocked all forms that are used throughout the company, and our catalogued office supplies and accessories. This department however, does not have authority to add to or discontinue items without our approval. Thus it is impossible for anyone throughout Westinghouse to procure uncatalogued items, nor can a salesman introduce new stationery items that have not first been approved by us.

Thus control of the small items as well as the more costly items of machines and furniture is in our hands. Purchasing men who buy office accessories and supplies in volume readily recognize that there are hundreds of opportunities for waste and obsolescence, unless such buying is carefully controlled. For instance we do not stock thin-lead-pencils and the hundreds of other supply items that may be termed "whim" requirements rather than an actual need. On the other hand, speaking of small items, we have found that the dip-pen sets have definite merit. At present we have about 3,000 of these in use. We feel that these sets are a good investment, and attribute to each pen in use a saving of about $3.50 per year, to which might be added the saving in maintenance formerly required to clean desks and floors after ink has been spilled. Furthermore, we are paying a premium for two-ounce bottles of fountain pen ink, and estimate that we are saving at least $2,000 a year by doing so. It is our experience that the large containers lead to spillage and waste, and the ink tends to evaporate, with the result that it causes considerable trouble when used in fountain pens. We have had no complaints about clogged desk pen sets since we began furnishing the two-ounce bottle.

Due to heavy demand, office supply items are bought in large quantities, which of course gives us the benefit of the better prices that quantity buying offers. We have pretty well standardized such items and hence are not concerned about loss through obsolescence of non-standard items.

To facilitate distribution of accessories and supplies to meet operating requirements, each plant has its own stationery stores department, which procures its stock by requisition upon the Central Stationery department.

All vouchers covering office equipment and supplies are reviewed in my department, for the purpose of keeping acquainted with prices, learning what materials are being ordered repetitively and in what quantities, and analyzing purchases to determine if possible savings are in order.

Supplier Cooperation

I might add that we have carried on a program of education with our suppliers of office equipment, papers, and so on, with a view to acquainting them with Westinghouse policies and purposes. Practically all of them recognize our aim to avoid unnecessary buying and to eliminate waste, and have accorded us very complete cooperation. In

New *Berger* "Eye Comfort" desk top cuts contrast, eases eye strain!

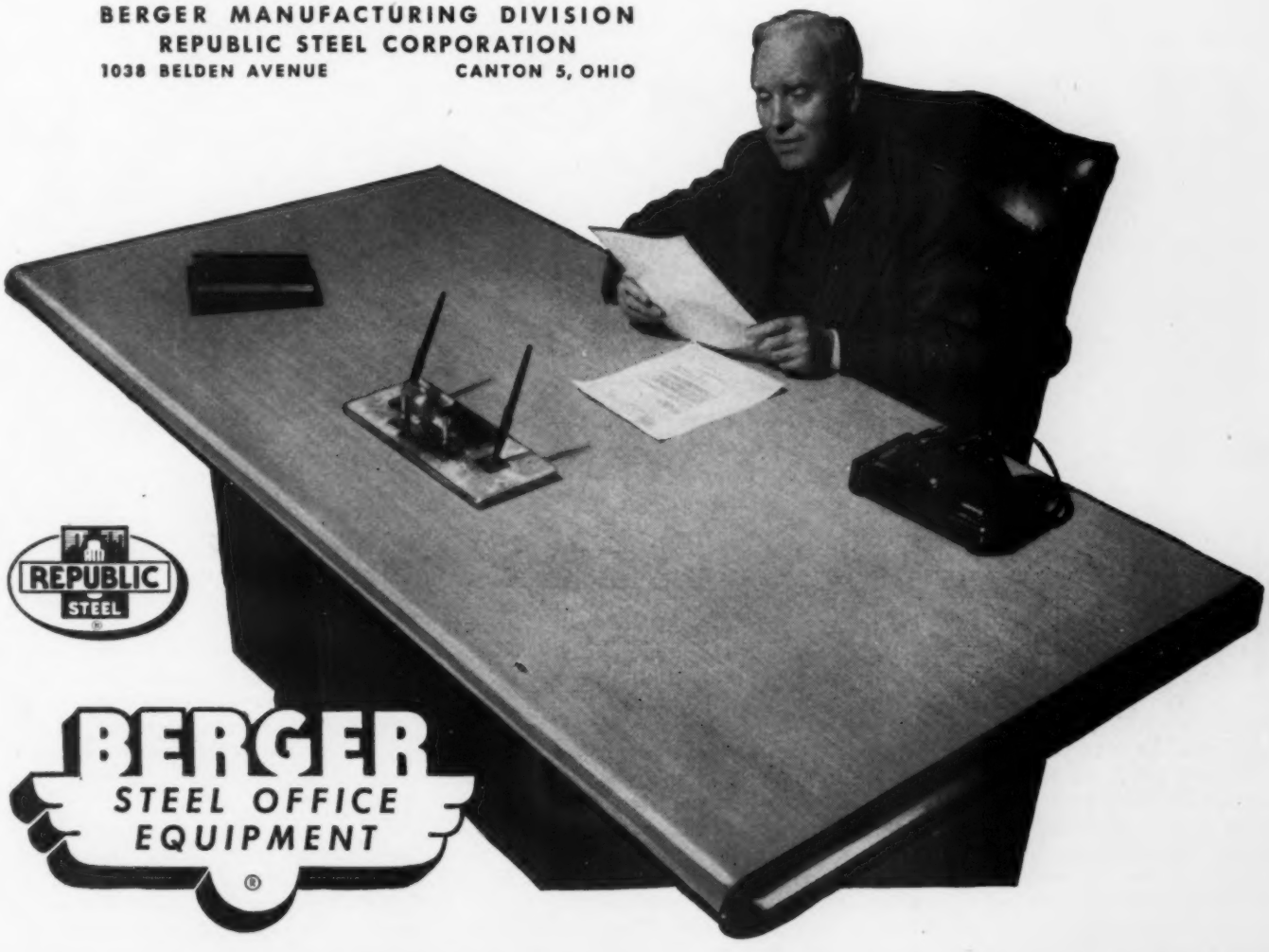
• Here's the latest in 'round-the-clock working comfort. Berger's new, light, "eye comfort" desk top *blends* softly with papers, offers no harsh contrast, rests your eyes.

This Berger *Executive Conference* Steel Desk is built for the big boss . . . and shows it in every inch. A big and brawny beauty—with "eye comfort" top overhanging graceful, tapering pedestals a full nine inches at sides and back—it allows time-saving conferences right at your desk . . . in comfort.

New design offers knee-and-leg-room aplenty. New locking convenience. Easy-gliding, full-opening, dust-proof drawers. Trim, smart, lower lines. Lasting beauty of modern platinum gray, rich walnut and mahogany wood grain finishes.

Your office furniture dealer is proudly showing the all-new Berger 5000 Series Steel Desks and Matching Tables now. See them, soon. Or, write us for descriptive literature.

BERGER MANUFACTURING DIVISION
REPUBLIC STEEL CORPORATION
1038 BELDEN AVENUE CANTON 5, OHIO



STEEL DESKS AND TABLES • STEEL SHELVING • STEEL STORAGE CABINETS • STEEL WARDROBES
STEEL BOOK SHELF UNITS • VERTICAL STEEL FILES • STEEL LOCKERS • STEEL BUILDING PRODUCTS

fact, some of the larger companies have issued special instructions on the acceptance and handling of our orders, and will not accept purchase orders that may be issued by other departments, that they feel are in violation of our regulations.

We feel that two important factors in our work are the service contracts and supply contracts that we have entered into with suppliers who have representatives throughout the nation. Our service contracts on such equipment as typewriters, dictating equipment, and so on, cover all maintenance service. A blanket agreement is made covering maintenance service wherever a machine may be located. We also have contracts covering various supplies used in our many offices throughout the country. These are for such items as carbon paper, office machine ribbons, duplicating equipment supplies, and so on. Copies of these contracts are sent to all purchasing points, and the local offices are authorized to issue orders under these contracts for the service or material needed. This has saved a tremendous amount of paperwork and time, gives the local people the benefit of our volume buying power, and makes it unnecessary for them to carry heavy inventories of the items so covered. We now have twenty of these blanket contracts, and expect to develop more, for they have proved a definite means of saving time, clerical work and money.



The rehabilitation and reissue of used furniture has been a source of enormous savings.

All printed material, except advertising and sales material, which is not obtainable through our Trafford printing plant, is procured through my department by competitive bidding. The specifications for this printed matter are either approved by or prepared by our forms engineers. The orders will vary in size, ranging from a few hundred dollars up to as much as $100,000.

We are very conscious of a printer's ability to meet our requirements. When procuring forms from outside sources we try to anticipate our needs so as to give the printer sufficient lead time to get the job done and make delivery according to schedule. We have placed orders for printed material as much as two years in advance. If occasion requires, we will split an order between printers, to insure delivery as ordered. Buyers of printing must of necessity have an intimate knowledge of equipment, paper and trade customs. We have been able to save large sums because our buyers have this basic knowledge, and are prepared to deal on equal terms with printers as to how a job can best be handled.

Forms Control Saves Thousands

Over the years, we have saved thousands and thousands of dollars through forms control. Throughout Westinghouse, some 10,000 forms are now in use. We have a forms engineering group which has been giving close study to forms for many years. This group consists of men who have specialized in forms design, and of course they have an intimate knowledge of printing and paper. The man in direct charge has had 22 years experience designing and buying forms, and his assistant has been with the company for a much longer period. In fact, there is not a member of this forms engineering group who has had less than 12 years experience in this type of work.

Since the work has started in 1930, this group has reduced the number of forms in use by several thousand, reduced the use of colored paper (which is more costly than white), and has designed our forms to conform to paper mill and printing standards, looking to the most economical production.



Repairs are made quickly, minimizing "down time" of office machines and need for large inventory of machines for emergency use.

The purchasing department forms used by Westinghouse, are an excellent example of the accomplishments of this group. In 1930 we had 57 different kinds of purchase orders. Today we have but three. One is the regular purchase order, another is a field or emergency order, and the other is a form especially designed for use by the advertising and sales promotion department. Hundreds of forms have been redesigned, standardized and reduced in number. For instance we may get a request for a form 6" x 9¼" in size. The forms group will redesign the form in the 5" x 8" size which is the most economical in the utilization of paper stock, and also more practical for office use.

Due to the constructive work of this group, we feel that we are now operating with about half of the number of forms that might have been developed under old practices. I think we can conscientiously say that under our present program of forms control, and printing most of our forms in our own printing plant which is one of the largest and most modern in the world, that we are saving a million dollars a year on forms alone.

All proposed new printed forms that may be suggested by anyone, must be submitted to this forms group for study as to actual need, proper design, and possible duplication of a form now in use. This committee must O.K. a proposed form before it is added to our list of approved forms.

New and Improved
Burroughs Supplies

Now Available for All Makes of Business Machines





Bellaire—

The Executive Brand Carbon Paper and Inked Ribbon.

Now the efficiency of your typewriters, adding machines, accounting machines—*all* your business machines, whether Burroughs or not—can be improved by the unique qualities of Burroughs supplies. These aids to better machine performance were developed after intensive Burroughs research, to give you greater operator and machine productivity, more legible work, with greater economy.

We invite you to test these new Burroughs products in your office, on your own machines. Judge for yourself how they can boost efficiency and save you money. Call your local Burroughs office, or write Burroughs Adding Machine Company, Service Division, Detroit 32, Michigan.



Mainline—

Carbon Paper and Inked Ribbon for High-Volume, Quality Work.

Other Burroughs Supplies Include:

Platen Restorer; Cushion Keytops; Protective Machine Hoods; Roll Paper, plain or carbonized; Journal Sheets; Hectograph Master Sets; Spirit Duplicator Fluid; Autographic Register Rolls; Base-of-Felt Machine Pads. These Supplies, too, from Your Burroughs Service Representative!



Clean Copy—

A New High Standard in Low-cost Carbon Paper and Inked Ribbons.

WHEREVER THERE'S BUSINESS THERE'S

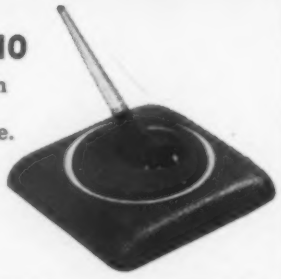
Burroughs

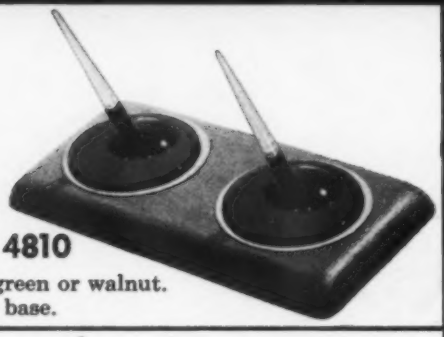
THESE SETS NEED INK ONLY 4 TIMES A YEAR

(in normal desk use)

Only a few of the more

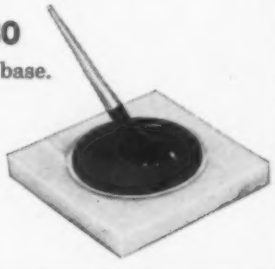
Model 4410
Maroon, green or walnut. Permalite base.





Model 4810
Maroon, green or walnut. Permalite base.

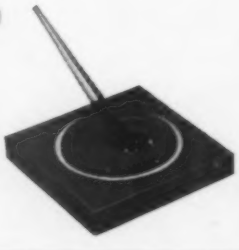
Model 4430
Genuine Onyx base.





Model 4830
Genuine Onyx base.

Model 4420
Black Carrara marble base.



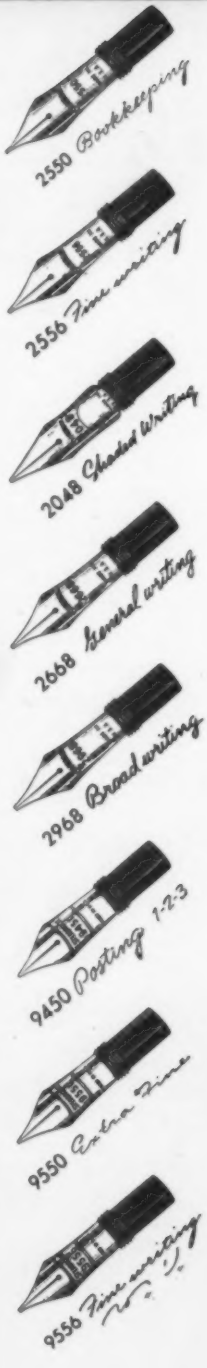


Model 4820
Black Carrara marble base.

Model 484
Heavy glass base in black, clear, green, gray, or maroon.

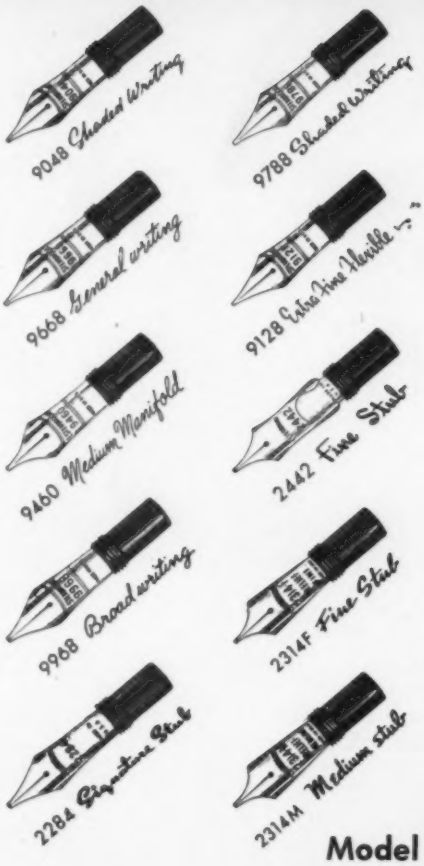


Esterbrook®
DESK PEN SETS



AND YOU CAN CHOOSE THE RIGHT POINT FOR THE WAY YOU WRITE

popular point styles shown



ASK YOUR STATIONER FOR A DEMONSTRATION



Choose your own individual point style from the world's largest selection.

Point instantly renewable in case of damage.

"Ink-Locked" against accidental spillage. Can't leak. Won't flood.

Base holds 40 times more ink than ordinary fountain pen desk sets. As easy to clean as a saucer.

Model 444

Heavy glass base in black, clear, green, gray or maroon.

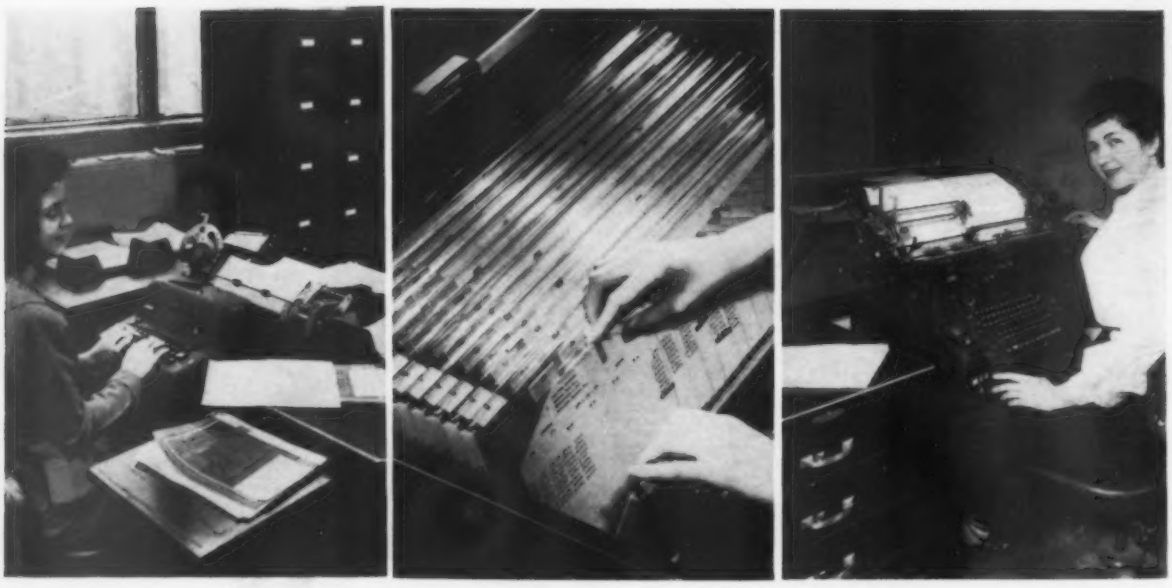
Esterbrook® 444

DESK PEN SETS

THE ESTERBROOK PEN COMPANY, CAMDEN 1, NEW JERSEY

THE ESTERBROOK PEN COMPANY OF CANADA, LTD., 92 FLEET ST., EAST; TORONTO, ONTARIO

Major Part of Office Equipment and Supplies Buying is Highly Competitive



WITH one worker out of eight being on office payrolls, it is not difficult to envision the important role of modern office equipment and appurtenances in cutting costs, increasing production and overall efficiency.

The mechanization of the office has made big strides in the past few years. In fact it is estimated that twenty to thirty times the current office force would be necessary to produce the great volume of administrative material now regarded as necessary, were it not for the time and labor saving office equipment now available.

The importance of administrative equipment is well set forth in the article by W. D. Bish, purchasing agent, Office Standards Department, Westinghouse Electric Corporation, in this issue of PURCHASING. He states that current value of office machines, equipment and accessories used by 24 major divisions and 70 plants of the company, is approximately $30,000,000. The overall expenditures by his department approximate $6,000,000 annually.

Office records and forms and the equipment for processing them, come into the picture in a big way. Large companies that have given forms careful study and analysis, have saved sums running into six figures through practical forms control. Their studies not only involved the factor of need and use-values, but also the mechanics of preparation or typing. The article by Mr. Bish contains some interesting fact matter on forms control also.

Buyers specializing in the procurement of office machines, equipment and supplies, state that approximately 90% of this buying is competitive, and that it is the open sesame to large and small savings, when governed by the same sound principles of purchasing that govern the procurement of production materials and equipment.

The assortment of case histories in this section cover such things as electric typewriters, punched card systems, duplicating and copying equipment, microfiling, and the substantial savings born of desk pen and ink sets.

One of these case histories tells how the use of translucent cards eliminated manual copying, and made it possible to do in two days' time with the aid of modern copying equipment, the same volume of work that formerly required the time of twelve clerks.

Another recites how a Connecticut company solved a communications problem by the installation of an inplant telephone system with 43 stations and 20 party lines. This system and a general call system cost $16,800, and it is felt that the system will fully pay for itself in two years. In another instance, the installation of mechanized accounting procedures enabled a motor transport line to hold an increase in general office personnel to 30% in a period when total personnel had increased 65%, and gross revenues 150 to 200%.



"Think Miss Hardway might be offended?"

There's a big difference in business forms, too!

(a difference in what they will accomplish for you)

Chances are, one business form *looks* very much like another. How, then, can you be sure of getting the *best?* Thousands of firms, including 93 of America's 100 largest, have found the way. They depend on Standard's "unseen specifications" — the specialized, manufacturing know-how you'd *expect* from the originators of marginally-punched continuous forms. They appreciate the quality of product that permits continuous, trouble-free operation of a system.

The analysis and planning that *go into* business forms make a big difference, too. Standard Register Men develop *better-working* papers on the basis of a complete and practical *System Analysis.* They *design* such forms to minimize clerical operations.

Standard Register Engineering has developed the most complete line of superior forms-feeding and handling devices to enable you to simplify the entire *process* of producing written records.

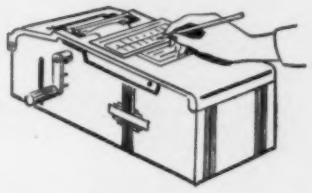
If you have a paperwork problem, let us show you how important the difference in business forms can be. Just phone Standard Register in your city, or write The Standard Register Company, 405 Campbell St., Dayton 1, Ohio.

STANDARD REGISTER

Business Forms and Utilizing Devices

ORIGINATORS OF MARGINALLY-PUNCHED CONTINUOUS FORMS

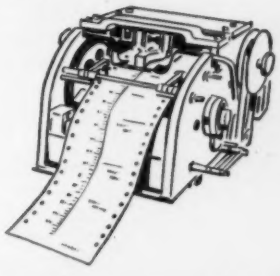
PAPERWORK SIMPLIFICATION:
What happens when better business forms are scientifically applied.



Dupli-Card Register reproduces set of operating records for all departments concerned when a tabulating card is handwritten as the original. System gives clock manufacturer exact *inventory control,* substantial saving of clerical work. (PS. 26)*



Automatic Line Finder on electric typewriter with Registrator Platen, Kant-Slip continuous forms, enabled lumber company to *double production* of invoices per operator-hour. (PS. 24)*



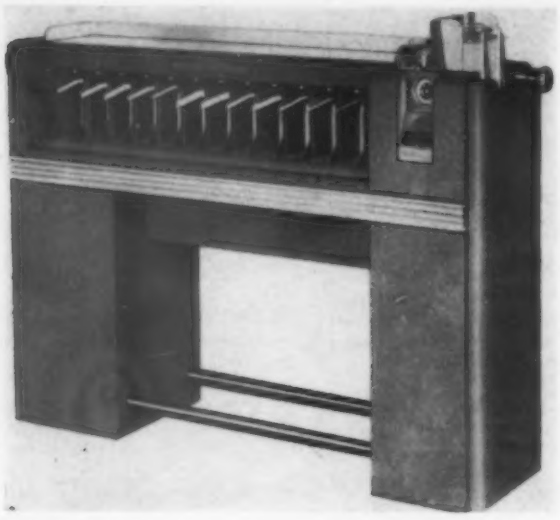
Kant-Slip Continuous Forms are made to operate as pressure switch calibration charts in ingenious recorders demanding accuracy of the highest order—a striking tribute to business forms manufacturing precision. (PS. 25)*



Unit Zipset 10-part production-shipping-billing combination form reduced 6 separate record-writing operations to 2, affords complete control to firm with office and plant 600 miles apart. (BA)*

Name and full story on request. Write Standard Register.

Office Equipment



Sales Reports Now Produced in Four Days

A West Coast manufacturer of coffee, tea, spices, extracts, and other products, with ten warehouses in addition to the main plant, has found that sales reports formerly prepared manually in ten days can be produced in four days on electric punched card accounting equipment. This provides a far closer check on sales and permits operating with lower inventory, faster stock turnover, and a minimum investment.

COST SAVING ITEM—426

Typing Activity Increased 10-15%

The New Orleans firm of Barton, Pilie and Wermuth, certified public accountants, is using electric typewriters featuring proportional spacing exclusively for general correspondence, executive correspondence, proposals, income tax returns, office forms requiring duplication, etc. The firm is currently averaging a 10-15% increase in typing productivity, and expresses the opinion that the attractiveness of the typed pages and elimination of operator fatigue are added advantages. Operators like the machines, and number of errors has been substantially reduced.

COST SAVING ITEM—427





Printing Calculator Makes for Savings

Oppenheimer & Co., members of the New York Stock Exchange, found that through the use of a fully automatic printing calculator, several hundred dollars were saved by avoiding the investment in both a calculating and adding machine. Ease, accuracy and speed of operation as well as the advantage of checking all the calculations through the printed tape resulted in a time saving estimated at 30%.

COST SAVING ITEM—428



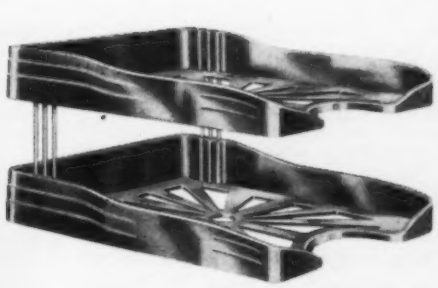
Great NAMES IN INDUSTRY . . .
CHOOSE *Great* DESK TOP EQUIPMENT!

BERT M. MORRIS CO. is *foremost* in the field of *matched* Desk Top Equipment.

The complete setting shown—pen set, memo pad, letter tray, ash tray, and phone rest, retail for less than you would expect to pay for one fountain pen set.

MORRISTRAY—One of the most functional letter trays on the market. Extra sturdy, two point suspension allows quick, easy access from the entire front and both sides. Available in either letter or legal size, tiers may be quickly added—removed—or combined.

THERE IS NO SUBSTITUTE FOR QUALITY. *All Morris writing sets are equipped with iridium tipped points and each point is tested and approved at factory for writeability.*



AVAILABLE IN—GREY—BRONZE—WALNUT—MAHOGANY and GREEN

Desk Top Package Deals—#100 and #200
Inquire about the surprisingly low cost of matching your desk with these items.

FOUNTAIN PENS — an efficient and economical pen set with "thread-in" point section. A real time and money saver in any office.



BOOK ENDS — at last — inexpensive book ends to match modern office furniture.



MEMO PADS — available in two types. With jewelers bronze bar that drops as paper is used, or standard box style.



MORRISET—The constant flowing, finest all-round writing implement. Holds a *full 2½ ounces of ink.* Choice of 5 quickly replaceable "thread in" points—extra fine, fine, medium, broad, stub.



ASH TRAY—A real He-Man ash tray. Glass lined, perfect for any desk or conference table.

BERT M. MORRIS CO.

Dept. P-5, 8651 West Third Street
Los Angeles 48, California
In Canada: McFarlane Son & Hodgson, Ltd., Montreal, Que.

Office Equipment



Transcription Production Increased 28%

The transcription department in the St. Paul home office of the First Bancredit Corporation uses electric typewriters exclusively. Company officials declare that the ease, speed and accuracy of the electric machines have resulted in production increases of 28%. In addition, operator turnover has sharply decreased since the installation of the machines.

COST SAVING ITEM—429

Obviates Large Staff

An installation of electric punched card accounting machines and auxiliary equipment plays a key role in the operations of a large insurance company with more than $1,000,000,000 worth of insurance in force. Agency accounting and statistical records, payroll and other accounting functions are handled by the central tabulating bureau, from which management secures a great variety of useful reports. The company estimates that more than five times the present staff would be needed to handle the work if accounting methods were not mechanized.

COST SAVING ITEM—430





Save 98% of Storage Space

Allen-Bradley Company, Milwaukee, Wisconsin, was faced with the problem of retaining over a million and a half invoices containing important engineering data. Microfilming equipment enabled them to convert the floor space used for this record storage to manufacturing space. The company saved 98% of the storage space formerly required for records by putting them on microfilm.

COST SAVING ITEM—431

Rubber Tool Cuts Typewriter Type Cleaning Costs

Analytical work in engineering office of Sanders & Thomas, Pottstown, Pa., requires constant use of typewriters for tabulations which have to be clear and clean-cut for reproduction. Results were improved by twice daily use of dry rubber tool type-cleaner, which is speedier, odorless, and is reported to save $7.40 per unit per year as compared with the cost of fluids.

COST SAVING ITEM—432







IBM

Electric Typewriters

With just the lightest touch of their fingertips your typists turn out beautiful work on IBM Electrics. They're such *easy* typewriters to use.

Every job gets done faster, almost without effort . . . each is uniformly clear, distinctive, impressive. IBM Electric typing is strikingly different.

No other typewriter is so saving of your typists' time and energy—and your company's money.

INTERNATIONAL BUSINESS MACHINES

IBM, Dept. PR-2
590 Madison Avenue, New York 22, N. Y.

☐ *Please send illustrated folders on IBM Electric Typewriters.*

*Name*_____

*Company*_____

*Address*_____

*City*_____

*State*_____

Office Equipment



Pen-Ink Sets Save Time and Pencils

When installed by a large Los Angeles Aircraft plant, pen-ink sets effected a substantial saving. Large ink capacity kept the pen-ink set in continuous service during a period in which a fountain pen needed filling in excess of 100 times. Another major economy factor was the saving of wood case pencils. When the pen-ink sets were furnished, the use of pencils was reduced. The cost of using ink was only 10% of wood case pencil cost for similar work. Overall saving $5.00 per year per worker.

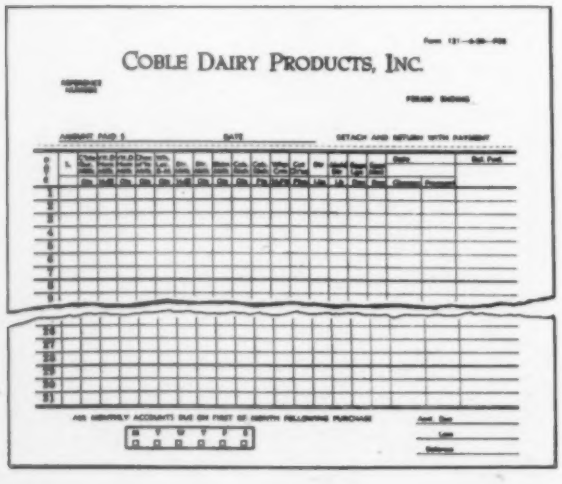
COST SAVING ITEM—433

Inplant Telephone System Pays for Itself in Two Years

Tuttle & Bailey, Inc., New Britain, Conn., installed automatic in-plant dial telephone network, the 43 stations and 20 party lines of which enable anyone to talk to anyone else almost instantly. Combined with this network is general call system. There are also four standard "intercom" intsallations for special communications problems. The in-plant and general call system cost $16,800. Although actual dollar benefits are hard to figure, it is felt that system will fully pay for itself in two years. Power to operate the in-plant system comes from batteries charged by power lines. Every telephone in the network can be used at the same time.

COST SAVING ITEM—434




COBLE DAIRY PRODUCTS, INC.

Translucent Cards Cut Costs 65%

By simply having route cards printed on translucent instead of opaque stock, a Lexington, North Carolina company was able to eliminate manual copying, proving, and transcription errors in the preparation of monthly invoices. The copies, which require one girl's time for two days, are printed on modern copying machine from the translucent route cards sent to the main office. Previously it took 12 girls two days' time to hand-write and type up customer invoices. Extra copies can be made at any time by pulling the original from the files and running it through the machine.

COST SAVING ITEM—435



Album

OF A "THREE-YEAR-OLD" PAPER SALESMAN

Old enough to have acquired a thorough knowledge of his company's products — and the knack of applying that knowledge to his customer's paper problems.

Young enough to be enthusiastic about his job — optimistic about his future—eager to render service. His enthusiasm is infectious. He's a grand fellow to meet and know.

Rewards for service-well-done are still coming in for Bob Softy. And whether the sledding is easy or rough, he's always on deck with a smile, ready to go to bat for his customers — over 90% of whom are in the printing and publishing business.

Perhaps you are tired of "tired" paper salesmen. If you are, put in a call for Robert A. Softy, a younger member of the Hobson Miller sales team — a group of men who thrive on paper problems and their solution. They know that paper is but the means of expressing ideas — and believe that ideas freely given, provide the key to success in the paper business.



ROBERT A. SOFTY
Queens College '47. Member Young Printing Executives Club of the New York Employing Printers Assn.

HM PAPER

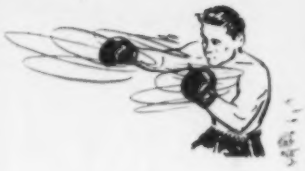
HOBSON MILLER Paper CO., INC.

280 LAFAYETTE STREET NEW YORK 12, N. Y.

DOODLES* IN THE AIR



CUTE FOR KIDS



FINE FOR FIGHTERS



GOOD FOR GOLFERS



SWELL FOR A SWORDSMAN



BEAUTIFUL FOR BALLET



DANDY FOR DRUM MAJORETTES

...but BAD for BUSINESS!

Tracer lights reveal savings

in AMERICAN LITHOFOLD F

THERE'S A DRAMATIC STORY behind those much-discussed "doodles" advertisements you've been seeing. It's the story of American Lithofold's never-ending search for better, faster, more economical forms-writing methods. Armed with stop watches and striking "tracer light" devices, expert Systems Engineers set out to *prove* how modern business can make substantial savings by using *planned* business forms.

Conclusive results of their studies are shown in the photographs and chart on the opposite page. Two forms were used. A standardized invoice form and a redesigned form containing the same information. FIRST, tracer light photographs recorded every motion, every second of time, in filling out the standardized form. Next, the same information was filled in on the American Lithofold redesigned form.

Comparison of the two methods showed amazing results! Careful elimination of wasted motions, unnecessary carriage returns and tabulations, saved as much as 28%—the equivalent of *two extra hours* of productive work per day for each girl!

JUST MULTIPLY this saving by the number of typists doing forms-writing in your office — and you'll see how much *you* can save by eliminating "doodles in the air" with *planned* business forms.

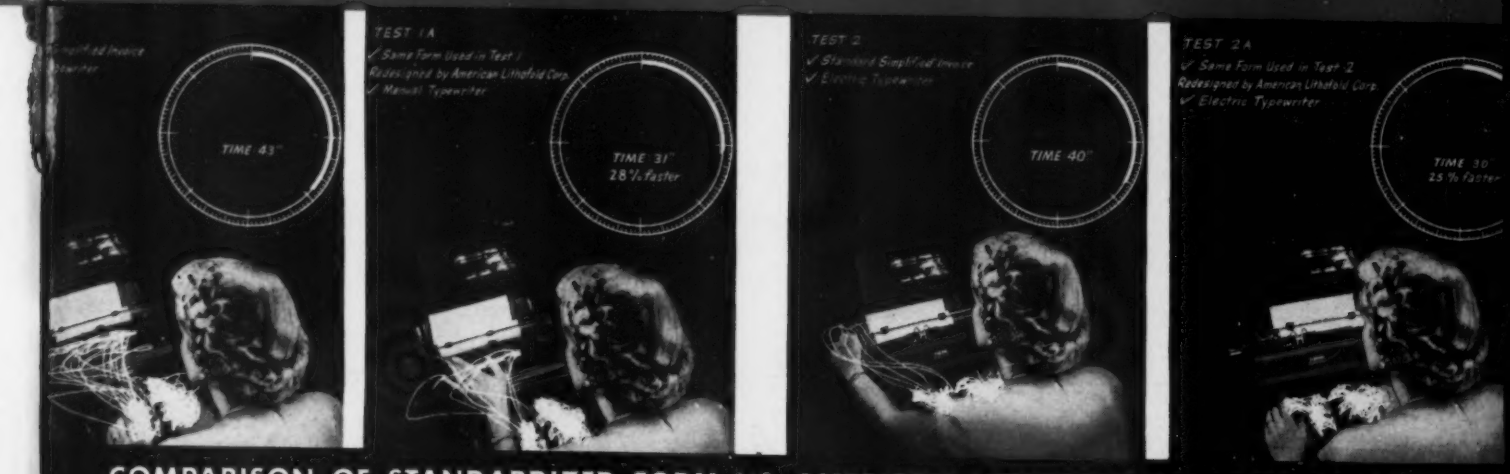
REVEALING 4-STEP ANALYSIS YOURS, WITHOUT OBLIGATION

Your American Lithofold representative will be pleased to call on you and analyze your present business forms and procedures. Without cost or obligation, he will show you how *Planned* Business Forms will increase efficiency, boost output, reduce your forms-writing costs. Write for this valuable service today!



* **DOODLES IN THE AIR** are unobserved WASTE MOTIONS . . . needless extra manipulation of hands and equipment in the writing of forms.

PLANNED BUSINESS FORMS!



COMPARISON OF STANDARDIZED FORM VS. AMERICAN LITHOFOLD PLANNED FORM

Type of Machine	Standardized Form	Planned Form	TIME SAVED
Manual Typewriter	43 seconds	31 seconds	28%
Electric Typewriter	40 seconds	30 seconds	25%

FILL OUT AND MAIL THIS COUPON NOW!

NOTE: Typewriter attachment shown above is special apparatus used only for tracer light tests.

Manufacturers of LITHOSTRIP • LITHOSET • LITHOFOLD

AMERICAN LITHOFOLD CORP.

500 BITTNER STREET • ST. LOUIS 15, MISSOURI

Offices in Principal Cities

☐ Without obligation have your representative call and explain how we can benefit from a 4-step analysis.

☐ Send us samples of _____ forms used in the _____ industry.

Company Name _____

Address _____

City _____ Zone ____ State _____

Signature _____

Office Equipment



300% Return on Visible Record Investment

In 1947 Durez Plastics & Chemicals, Inc., North Tonawanda, N. Y., installed visible record system for their maintenance inventory stock record. The supervisor of stores is responsible for an inventory valued at $400,000. The closer control made possible by the system has enabled him to hold inventory to the same investment required three years before, although the number of items stocked has more than doubled. The saving of supervisor's time (2½ hours a day) plus the elimination of the need for one stock clerk makes for an estimated 300% annual return on the investment for the first three years.

COST SAVING ITEM—436

Capital Investment in Stock Cut 40%

Our capital investment in stock has been cut 40%, we have a better supply of a greater variety of items, and we now give more service faster, — all this because we substituted an activated inventory control procedure for a static stock record, states E. C. Boykin, president of the Boykin Tool & Supply Co. Records are right and up to date, which he says means more than the clerical and other savings made possible by the system.

COST SAVING ITEM—437





Records Conveyor Eliminates Five Messengers

Illustration shows record-conveyor installation in Vanderbilt Clinic, Columbia-Presbyterian Hospital, New York. Records of 95,000 patients kept in a central file are distributed automatically to any of ten different floors of the hospital. This conveyor replaced dumbwaiter and also eliminated the use of five messengers which were normally required. The continuously running conveyor with push-button control, has cut former record delivery time 20%.

COST SAVING ITEM—438

Saves Time of 13 Stock Control Clerks

The York Corporation, York, Pa., has made 32 visible record keeping installations, since original installation in 1942, because of rapid posting and visible margins. These include purchase stock records, inventory control records, service records, cost records, personnel records, and others. The time of 13 stock control clerks has been saved by the use of the system.

(*Please turn to page* 254)

COST SAVING ITEM—439





in the dark...

about how to increase typing production?

You won't be after a "look-see" Test* on the new *Electri-conomy*



The Remington Electri-conomy is *really sparking news* in the typing world today . . . *new speed* to increase typing production — *new operating ease* to lighten typing work for secretaries — plus *new beauty* and *readability* for correspondence and reports.

Yes, the "years-ahead" superiority in design, construction and performance has put the Remington Electri-conomy way out in front in the electric typing field — where it is successfully and squarely meeting today's secretarial shortage plus the need of business organizations to get more things done in less time.

***For FREE informative Electri-conomy Test right in your own office or FREE literature, mail the coupon below.**

Remington Rand INC.

THE FIRST NAME IN TYPEWRITERS

Room 2038 315 Fourth Avenue, New York 10

☐ Please arrange for FREE Electri-conomy Test in my office.

☐ Please send me a copy of FREE folder "TAKE A LETTER" (RE 8499).

Name_____

Company_____

Address_____

City_____ Zone____ State_____



THIN PAPERS

Reduce
MAILING
TYPING
FILING
Costs.

Use
ESLEECK
THIN PAPERS

Air Mail Bond
Clearcopy Onion Skin
Fidelity Onion Skin
Laid Thin Papers
Prestige Onion Skin
Superior Manifold
Thin-Opaque

Recommended for
Thin Letterheads, Copies,
Records, Forms,
Advertising.

Ideal for Air Mail, Branch
Office and Foreign
correspondence.

SEND FOR SAMPLES

ESLEECK
Manufacturing Company
Turners Falls, Mass.

Time Clocks Eliminate Labor Charge



As a part of a revision and mechanization of reporting methods, a small mine replaced manual check sheets with time clocks. Handled manually, the job of recording employee's working time cost approximately $1897 a year for labor. By purchasing five clocks at a total cost of $1825 they were able to eliminate the labor charge and replace it with an annual charge for depreciation of $261. as write-off against the cost of the clocks. The time clock cards are now used to check men on and off the property. Absentee information that previously was posted in five separate mine captains' books and then reposted to the pay ledger is now recorded on the cards.

COST SAVING ITEM—440

Wide Carriage Adding Machines Increase Production 25%



Since adoption of new master parts shipping schedule form which is printed on hectograph manifold units, and applying 10 key wide carriage adding machines to the entire operation, clerks who prepare these forms in the Packard Motor Car Company's production control department, have stepped up production from 20% to 25%. Formerly they were able to prepare about 400 schedules per day. Now they produce about 500 in the same length of time. There were no changes in procedure — merely the shifting of data on the form and wider application of the adding machines.

COST SAVING ITEM—441

Mechanized Accounting Base of Minimum Personnel Increase



A large southern motor transport line states that mechanized accounting procedures have made it possible to hold an increase of general office personnel to 30% in a period when total personnel had increased 65% and gross revenue 150 to 200%. This company installed electric punched card accounting equipment, and says that many of the valuable management controls developed were not possible on a manual basis at a much lower volume level. Cost of producing them manually at present level of operations would be prohibitive.

COST SAVING ITEM—442

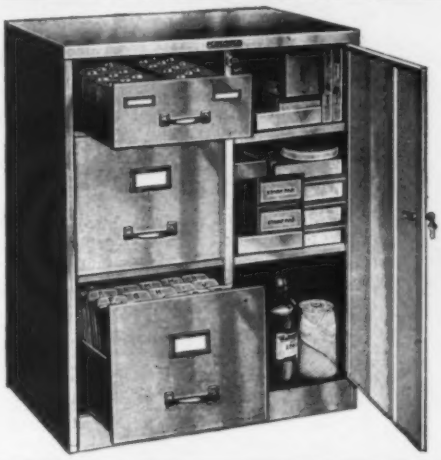
Save $75,000 a Year in Retracing Expense

Retracing of wornout drawings was costing the Ford Motor Company $75,000 annually. Average life of tracing was six months during which period it might be revised as many as six times and used to reproduce 500 or more blueprints. Ford decided that the solution was to make the blueprints from intermediates, selecting an autopositive paper which tests showed assured

(*Please turn to page 256*)

Steelmaster

The Original and the Best
ALL-IN-ONE
COMPLETE OFFICES—



1A

ITEM NO.	DESCRIPTION	OUTSIDE DIMENSIONS			SHIP. WT.
		HEIGHT	WIDTH	DEPTH	F.O.B. N. Y
F1A	ALL-IN-ONE (LETTER) CORRESPONDENCE SIZE	34"	27"	16"	70 lbs.
F1APL	Yale plunger lock FOR ALL DRAWERS (LETTER)	34"	27"	16"	70 lbs.
F1C	ALL-IN-ONE (LEGAL)—OR CAP. SIZE	34"	30"	16"	80 lbs.
F1CPL	Yale plunger lock FOR ALL DRAWERS (LEGAL)	34"	30"	16"	80 lbs.

Available in Grey or Green

SPECIFICATIONS

Steelmaster safer-at-home units made of best grade furniture steel, electrically welded throughout for extra strength. Units are constructed with extra strong ribbed outside doors, complete with lock and keys. Yale plunger locks available for all drawers. 4 speed ball bearings—instant positive compressors—strong Z-bar rail—convertible to hang folder filing. Available in grey or green.

Steelmaster 1A Full-width split card drawer for 3x5 or 4x6 cards. Capacity 3000 cards. Center divider is removable—can be converted for flat form filing. 2 full-width letter drawers. Storage section has 3 compartments.

Steelmaster 2A 3 full-width letter drawers and storage section with 3 compartments.

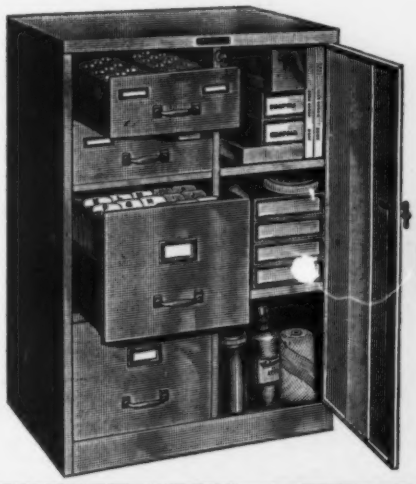
Steelmaster 3A 2 full-width split card drawers for 3x5 or 4x6 cards. Capacity 6000 cards. Center dividers are removable. Can be converted for flat form filing. 2 full-width letter drawers. Storage section has 3 compartments.



2A

ITEM NO.	DESCRIPTION	OUTSIDE DIMENSIONS			SHIP. WT.
		HEIGHT	WIDTH	DEPTH	F.O.B. N. Y
F2A	TWO-ALL-IN-ONE HI-BOY (LETTER)	40"	27"	16"	100 lbs.
F2APL	Yale plunger lock FOR ALL DRAWERS (LETTER	40"	27"	16"	100 lbs.
F2C	TWO-ALL-IN-ONE HI-BOY (LEGAL)	40"	30"	16"	106 lbs.
F2CPL	Yale plunger lock FOR ALL DRAWERS (LEGAL	40"	30"	16"	106 lbs.

Available in Grey or Green



3A

ITEM NO.	DESCRIPTION	OUTSIDE DIMENSIONS			SHIP. WT.
		HEIGHT	WIDTH	DEPTH	F.O.B. N. Y
F3A	THREE-ALL-IN-ONE TALL BOY (LETTER)	40"	27"	16"	102 lbs.
F3APL	Yale plunger lock FOR ALL DRAWERS (LETTER	40"	27"	16"	102 lbs.

Available in Grey or Green

Available in Reasonable Quantities
Prompt Shipment . . . Literature Available

art steel sales corp. new york 63 n. y., u. s. a.

B+P... for clean writing

for smooth erasing

GENERAL
LEDGER FORMS — Rag Paper
For clean, clear, durable records Boorum & Pease Ledger Forms are unbeatable. There's a size, grade and ruling to fit your needs, including the "Flexo" leaf with a "hinge" that always lies flat, made of Byron-Weston 50% new rag content paper.

COLUMNAR
SHEET FORMS — Rag Paper
There's a B&P ruling to fit your needs. All standard rulings from 2 to 36 columns, white, green and buff paper. Just tell your stationer the forms you require and specify "Made by Boorum & Pease."

Remember NOTEAR® Ring Book Sheets for Strength without Bulk.

Standard B&P product
BROOKLYN 1, N.Y.

FOR EVERY RECORD—A WAY TO KEEP IT

(*Continued from page* 254)

blueprints of high legibility, and because paper could be processed in continuous blueprint machine



modified for photographic processing. Thousands of dollars a year in retracing expense has been saved, and draftsmen freed for creative work.

COST SAVING ITEM—443

One Clerk Now Does Work of Seven



Installation of modern copying machine and the use of a translucent order blank streamlined the invoicing procedure at the Strevell-Paterson Hardware Co., Salt Lake City, Utah. The 31 full time salesmen hand-enter the information on the translucent order blank and send it to the main office where order is filled. After shipment, billing department enters the pricing and extension data, and then has copies made on copying machine which are sent to the customers as invoices. One girl is now able to handle the 800 daily invoices that previously took seven experienced billing clerks.

COST SAVING ITEM—444

Invoices Prepared 100% Faster

Use of a tape-operated automatic typewriter at the Farm Bureau Cooperative Association, Inc., Columbus, Ohio, enables an operator to produce twice the number of



invoices in a given time as formerly. A separate invoice, which includes a detailed description, is written for each item. Tapes of the descriptions are on file and are used to automatically type this information. When more than one of the same items are shipped to a co-operative, complete invoices are typed by tape obtained as a by-product of writing the first invoice.

COST SAVING ITEM—445

Trust Company Saves $6000 Annually In Copywork



The Provident Trust Company, Philadelphia, Pa., is saving $6000 a year just in the duplicating of administered wills, six copies of each being required in trust department transactions. Formerly it took two typists working twice the time now required, to do the job. Copy work is now done by dry, direct positive electrostatic process. Wills are copied onto offset paper masters, and in matter of few minutes required number of copies is rolling off duplicator. Typing and checking for errors are eliminated. The process is used for copying letters, etc.

COST SAVING ITEM—446

(*Please turn to page* 258)

DOES THIS "THING" LIVE IN YOUR OFFICE?



The admission you'd pay to see this in an aquarium is lost to sight when compared to the millions that are wasted to keep it in an office. Old-fashioned write and re-write, do-it-over-and-over-again paper work methods are burdens that give P&L statements saddle sores.

But no more of that for the hundreds of companies all through industry who have streamlined their paper work with Colitho "One Write" Systems. Work-hours and cost-dollars are saved in huge quantities when you use Colitho Offset Master Plates to convert estimating, purchasing, production and billing forms into "one write" systems. The first typing gives you the copies you need immediately, plus a long life master plate ready to print on any offset duplicator.

Colitho Plates are printed to your requirements and supplied in "snap-out" manifold sets or continuous for tabulator, teletype, formswriter, or addressograph. Some businesses use them as single plates, either pre-printed or blank.

Don't let this opportunity go by without finding out whether we do know what we are talking about. Mail the coupon now. You'll save money if we're right.

COLUMBIA RIBBON & CARBON MFG. CO., Inc.
150-5 Herb Hill Road, Glen Cove, L. I., New York

Colitho

OFFSET MASTER PLATES

Colitho plates and supplies make any offset duplicator a better duplicator.



Colitho Plates are adaptable to purchasing, manufacturing, distribution, selling, billing and accounting forms.

COLUMBIA RIBBON & CARBON MANUFACTURING CO., Inc.
150-5 Herb Hill Road, Glen Cove, L. I., N. Y. P-5

Please send me a copy of the Colitho Manual and samples of Colitho Masters.

Name_____

Title_____

Company_____

Address_____

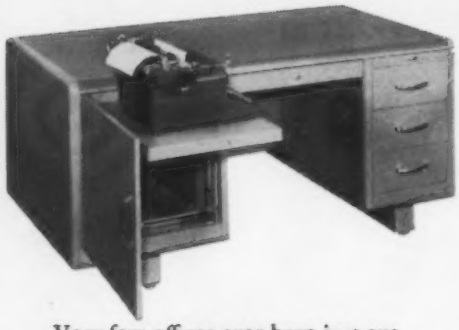
City_____ Zone____ State_____

Make of Duplicator_____ Model_____

Plate Size_____ Clamp Style_____



Now we all want
STEEL AGE!



Very few offices ever have just *one* Steel Age Secretarial Desk! For the beautiful design, superb comfort and wonderful work-ease of the first one is a sound investment in office efficiency well worth multiplying. Your Steel Age dealer has helpful desk planning information waiting for you. *Call him!*

Corry-Jamestown Manufacturing Corp.
Corry, Penna.

Steel Age

At Leading Office Furniture Dealers from Coast-to-Coast

Mohawk Trail Association
Charlemont, Massachusetts

PROOF
O. K. WITH CORRECTIONS
SHEPPARD ENVELOPE CO.

... Distinctive Printing

The most outstanding feature of a quality envelope is *distinctive printing*.

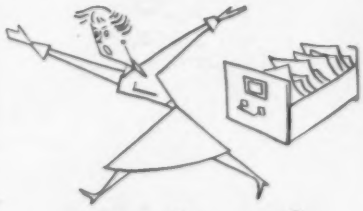
The Home of
MINT-E-SEAL®
The FLAVOR FLAP

Sheppard
ENVELOPE CO.

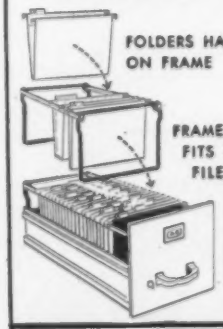
ONE ENVELOPE TERRACE, WORCESTER 4, MASS.
New York Office: 1133 Broadway, N. Y. 10

Will you compare your envelope with a sample set sent on request? Dept. 85.

Many girls once beautiful,
Are now just nervous wrecks
Because they filed without the help
of OXFORD PENDAFLEX!



Oxford
PENDAFLEX®
HANGING FOLDERS



CUTS FILING COSTS 20% OR MORE!

OXFORD FILING SUPPLY CO., INC.
Clinton Road, Garden City, N. Y.

Visible Records Save Purchasing Department Time



Use of visible record equipment in purchasing department of Bausch & Lomb Optical Company, saves buyers and their secretaries an immense amount of time handling inquiries and expediting work as well as in posting receivals. In a recent time study they found it required less than 20 minutes a day to handle effectively an average of 1000 open orders. Reference is made to any one of the visible record cards in two or three seconds. A glance at a tray of cards reveals instantly the follow-ups due that day.

COST SAVING ITEM—447

Permanent Requisition Saves Time, Money



Low cost of equipment plus the saving of rewriting and clerical work in processing repetitive orders in purchasing department of the Reynolds Wire Division of the National-Standard Company, has returned original investment in less than one year's time. In lieu of individual requisition, permanent or traveling requisition in the form of a two card stock card-permanent requisition is used by requisitioning department. This goes to purchasing agent who designates vendor, then to typist who types up the purchase order, the traveling requisition then being returned to the using department.

COST SAVING ITEM—448

(*Additional Items Continued on page* 340)

NEW SYSTEM FOR BUSINESS RECORD CONTROL

A new system of business record control has just been introduced by Diebold, Incorporated, Canton, O. The new product, V-Dex, is the latest development in maintaining accurate, visible control of all types of business records—stock, production, credit, sales, collection, personnel, purchasing and any others that require constant accurate handling. Operated without gadgets, Diebold V-Dex makes it possible to add or remove a wide variety of record sizes smoothly, simply, easily and is ideal for either hand or machine posting.

V-Dex is manufactured of high grade furniture steel, finished in Diebold chroma-gray fine wrinkle. Several models are available to fill various business requirements.

1 1 1

MODERN BUSINESS FURNISHINGS SHOW HOME INFLUENCE

The slim, simple lines of modern furniture design, seen in so many homes today, are becoming increasingly evident in the modern business office. Reflecting the increasing trend toward long-lasting, streamlined metal furniture, metal pieces in square-tubed, satin chrome plated styling are gaining added acceptance in every type of commercial and professional interior.

The domestic influence is also seen in the luxurious upholstery and spaciousness of modern metal pieces found in executive quarters. Quality foam rubber, said to be one of the most comfortable of the new seating materials, is covered with a ribbed boucle material which can withstand the daily wear and tear given a chair used by today's businessman. More comfortable working conditions and decreased fatigue are only two of the immediate results of these scientifically designed furniture pieces.

A new, slimmer square-tubed steel is used on the most advanced designs, and usually is plated with either the new satin chrome or with a heat-treated baked enamel finish in any one of a variety of colors. Increased use of color is a feature of many of the most modern business quarters today in contrast to the severity of old-time offices. Proper use of color stimulates the man behind the desk as well as the customer who judges a firm by the appearance of its executive offices.

(*Please turn to page* 260)



paper makes a difference!

JUST SAY

EAGLE-A

COUPON	-	Bond
AGAWAM	-	Bond • Onion Skin
CONTRACT	-	Bond
ACCEPTANCE	-	Bond • Record • Index
TROJAN	-	Bond • Onion Skin • Record
QUALITY	-	Bond • Manifold • Cover • Index Ledger • Embossed • Vellum

EAGLE-A PAPERS

Typewriter and Boxed Papers

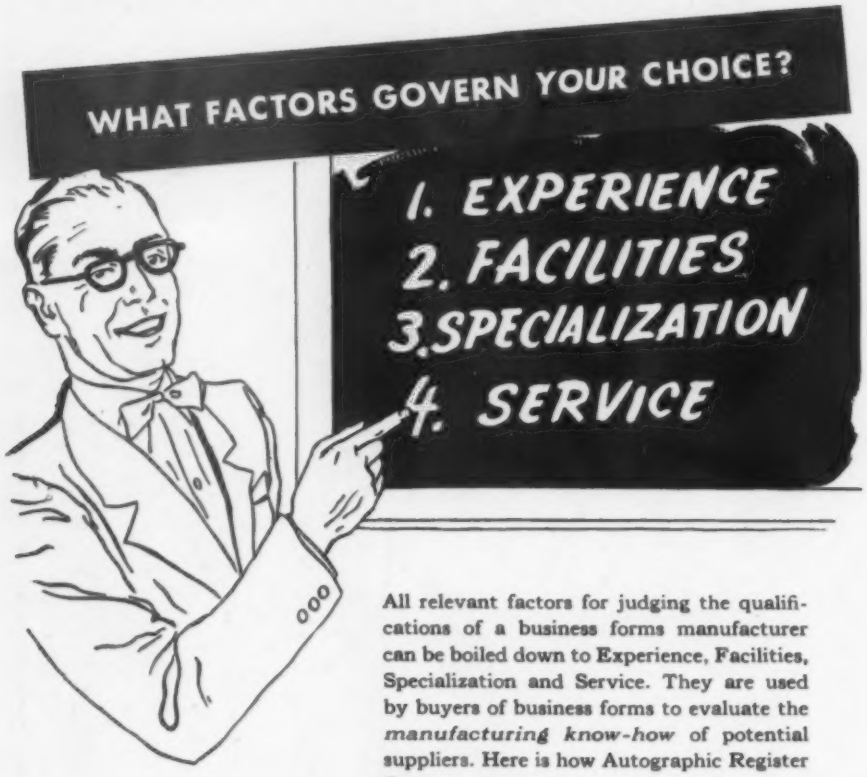
Paper and Paper Boards for engineering, industrial and technical uses.

AMERICAN WRITING PAPER CORPORATION

HOLYOKE, MASSACHUSETTS

When selecting a manufacturer of

BUSINESS FORMS . . .



All relevant factors for judging the qualifications of a business forms manufacturer can be boiled down to Experience, Facilities, Specialization and Service. They are used by buyers of business forms to evaluate the *manufacturing know-how* of potential suppliers. Here is how Autographic Register Company measures up to these points:

EXPERIENCE Autographic has manufactured business forms for 69 years. The thousands of users currently served include every type of business and governmental division.

FACILITIES Autographic has the most up-to-date equipment for printing, numbering, perforating, punching, interleaving, folding and collating continuous business forms—including multi-purpose machines that combine several operations. A new factory with 136,000 square feet of manufacturing floor space is under construction.

SPECIALIZATION Autographic has specialized for many years in the design and manufacture of continuous forms, with or without carbons, for all types of office machines. This concentration of effort has developed *manufacturing know-how* that enables us to produce *workable* business forms. It is your assurance that forms produced for you will perform satisfactorily in their end use.

SERVICE Autographic representatives are qualified to interpret customers' form requirements and to give technical assistance to methods and operating departments in the application and design of continuous forms.

Autographic **BUSINESS FORMS**

AUTOGRAPHIC REGISTER COMPANY

219 7th Street, Hoboken, New Jersey

Founded 1883

CAM-ACTION DESK STAPLER FASTENS 120 SHEETS OF PAPER

Thick pads of paper can now be stapled as easily as a few sheets with the new desk model stapler of The Heller Company of Cleveland, Ohio. The compact yet powerful stapler can stitch booklets, folders, magazines, maps, blueprints, time cards and perform many other fastening jobs.



The stapler cuts out effort by using the principle of long leverage and combining it with cam-action. It is light in weight, takes up very little desk space and has a sure grip rubber-cushioned base that cannot mar the finest finish. Drives flat steel staples 11/64″ to 9/16″ long, that come in long bars and can be loaded from either end of the machine.

The stapler was designed for the office girl's use, and will operate endlessly without attention, Heller states. Anvil or stitching head is interchangeable and the gate requires no tools to open.

* * *

GLOBE-WERNICKE INCREASES SCHEDULE OF FILING SCHOOL

Following the necessity of an unanticipated extra session of its One Day Filing School recently, The Globe-Wernicke Company, Cincinnati, Ohio, announces plans to increase the school's schedule to be conducted by its New York Branch in 1952. The decision to increase the availability of this practical course, instituted in 1948, came after the last School in New York, at which 400 were accommodated. The total was brought to 800 with the unexpected re-run, while 700 were turned away during the two days.

Leta J. Stroben, manager of Globe-Wernicke's System Division, New York, and Directress of the School, points out that while the number of clerical employees in American business and industry has jumped from a humble 2,000 in 1870 to a dramatic 7,600,000 last year, "the art of putting papers

away and finding them again is still the office step-child."

Since its first conclave in 1948, the School has issued 2200 certificates of completion to employees in steel companies, the food industry, insurance, banking, trade unions, the automotive industry, publishing, advertising, real estate and in fact almost every facet of American business.

Skilled in educating office personnel, Leta J. Stroben is a past president of the Records Management Association of New York; a vice president and director of the city's Office Executives Association, which is the New York Chapter of the National Office Managers Association.

Globe-Wernicke distills into The One Day Filing School curriculum the fruits of an all-industry experience in the best of filing, recording and indexing experience, through a sixty-nine year history.

Inquiries should be directed to Leta J. Stroben at the company's New York branch offices, 220 East 42nd Street, New York 17, N. Y.

AUTO-TYPIST SAVES UP TO 40% FOR SMALLER OFFICES



Model 5216 Selector Auto-Typist, made by American Automatic Typewriter Co., 614 N. Carpenter St., Chicago, Ill., is said to save time and money for the smaller office. On repetitive correspondence, such as form letters, collection and circularizing, a savings up to 40% may be expected, American states. Each letter is typed at 2½ times the manual rate, without error.

Operation is simple. The operator pre-selects the letter or combination of paragraphs that has been chosen by the correspondent, and the machine automatically picks out the letter or paragraphs and types is without further attention. If fill-

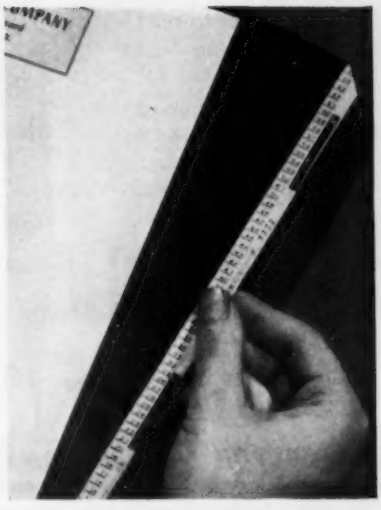
(*Please turn to page 262*)

Tip from America's Top Secretaries



"The scale edge is such a time-saver ...Micrometric is the only kind of carbon paper we use" ...says BESSIE LAKE, Secretary to Charles J. Zimmerman Managing Director of the Life Insurance Agency Management Association Hartford, Conn.

Successful secretaries pick Webster's MultiKopy Micrometric Carbon Paper again and again—because its famous numbered scale for measured typing ends guesswork on spacing letters and prevents "running over." The scale edge measures the paper for you—tells at a glance how many lines of typing space remain on any page.



You'll find that Webster's makes your work go faster—saves you from many tiresome and costly retyping jobs. Impressions from each long-lasting sheet are sharp and clean. The uncoated scale edge makes removal of carbon paper clean and easy.

Leading secretarial schools are recommending Webster's Micrometric. Try it yourself. See how this quality carbon paper can help you cut down typing time and improve the appearance of your work.

F. S. WEBSTER COMPANY

7 Amherst Street, Cambridge 42, Mass.

it's the
Smoothest WRITING
Brightest WRITING
COLORED PENCIL
yet!
extra-thin
Colorbrite
SMOOTH as a black lead pencil! Not tacky... not crumbly... easy to sharpen!
INTENSE color at a feather touch! Easier to read, even on colored papers or under fluorescent lights!
SUPERSTRONG elastic leads... guaranteed not to break in normal use! Wet-proof and smear-proof too!
EBERHARD FABER Since 1849
SEND COUPON FOR FREE SAMPLE!
Executives—Purchasing Agents—Office Managers—Secretaries! See why your present colored pencil can't equal Colorbrite! Fill in coupon—attach to business letterhead—mail to Eberhard Faber Pencil Co., Dept P-5, 37 Greenpoint Ave., Brooklyn 22, N.Y.
NAME
POSITION
DEALER'S NAME
Choose one: ☐ red ☐ blue ☐ green ☐ yellow

(Continued from page 261)

ins, such as dates, names, or places are to be inserted, it stops at a predetermined point and fill-ins are typed manually. Then it finishes the letter. The master record roll carries 16 or more letters or paragraphs, depending on the length.

Dimensions of the new model are: 28″ wide, 30″ deep, and 33″ high.

INSTALLATION SAVES UP TO 40% OFFICE SPACE



Illustration shows how a KORDAroom installation in the office of a large chemical company accommodated two people in the space formerly occupied by one. These semi-private, portable offices consist of an L-shaped desk, glass partitions, file cabinets and bookcase, all within arm's reach. They provide double working surface, privacy and prestige for personnel. They are large enough to hold two visitors.

IMPORTANT SAVINGS IN RECORD-HOUSING EQUIPMENT

Important savings in reference time, and increased clerical production in the handling of active records are offered by Rotor-File record housing equipment, according to the manufacturer, Wassell Organization, Inc., Westport, Conn.

Adaptable to housing a wide range of records including standard and special cards, binders, and folders, Rotor-File meets the requirements of such high volume reference and posting operations, sales and inventory records, tax records, cycle billing, tabulating card housing, accounts receivable, production and cost records, price data, etc.

Rotor-File consists of one or more circular tiers rotating on a vertical shaft with card records, binders, correspondence, or other material arranged in suitable trays or racks. The operator working from a seated position, commands a large number of active records and can easily find any record in seconds by rotating the tier to bring the proper tray within reach.

Complete Information for the INDUSTRIAL BUYER
WHO? WHAT? WHERE?
Conover-Mast PURCHASING DIRECTORY
Thousands of Industrial Buyers Prefer This Directory
With only the industrial buyer in mind, CONOVER-MAST PURCHASING DIRECTORY carries only listings and product facts on the equipment, parts, supplies, and materials needed by industry. Rigidly excluding all nonindustrial listings and advertisements, the Directory is kept compact—it is easy to keep handy and use, yet it is complete. Besides, it has 35 pages of useful information and tables for the buyer which he will not find in other directories.
Use the CONOVER-MAST PURCHASING DIRECTORY—you'll soon find that the complete cross references make it the easiest and quickest way to locate the suppliers of any item you buy. The more you use it, the better you'll like it.
The Most Convenient Industrial Buyers' Guide for Production, Purchasing, and Engineering Executives.
Conover-Mast PURCHASING DIRECTORY
737 N. Michigan Ave., Chicago 11, Ill.

In one series of popular models each tier except the lowest contains a 22½° pie-cut to furnish access to the tier below. To reach a lower tier, the clerk moves the tier until the desired tray is in the opening.

Record cards are filed in removable trays. Long and short trays alternate on the tiers to make maximum use of the tier area. Existing records can be transferred to Rotor-File without alteration.

File growth is frequently accommodated without need for additional space by the addition of tiers to existing Rotor-File units, the manufacturer says. The new equipment benefits management through increased clerical production, and benefits employees by removing many causes of fatigue, it is said.

PORTAGRAPH SENSITIZED PAPER DISPENSER

A new Portagraph sensitized paper dispenser to speed up photo-recording operations, has recently been announced.

Absolutely light-tight with cloth-protected ejection slot, the Portagraph sensitized paper dispenser is easy to load, with a spring controlled ejection bar for delivering a single sheet everytime the handle is flicked.

Available in two sizes—the G23 for 8½" x 11" paper, and the G24 for 8½" x 14" paper, the new dispensers weigh 4⅝ pounds and 5¼ pounds respectively from Remington Rand, Inc., New York 10, N. Y.

NEW TELEPHONE DICTATION SYSTEM

A new remote control telephone dictation system providing economical dictation facilities for multiple users has been announced by The Gray Manufacturing Co., Inc. It is called the PhonAudograph.

Each user has a private line connected with the single recording machine. In addition to privacy, the PhonAudograph gives him complete control of the system, including complete lockout of the controls on all other telephones.

Other outstanding features listed are:

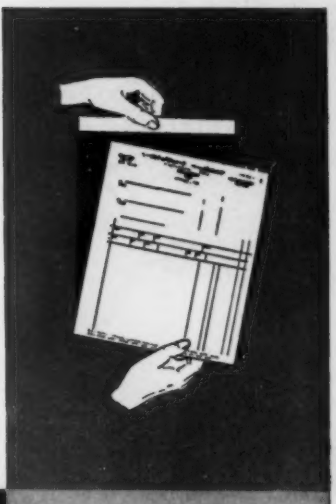
Push-button control for unlimited 'listen back' when he wants to pick up his trend of thought or to review something he has said. He can listen back as many times or as far back as he cares to;

Similar control for indicating corrections or special instructions to the secretary;

(*Please turn to page* 265)

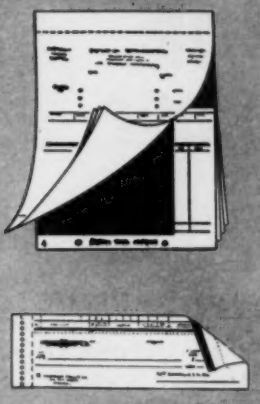
Federal Specializes in COMPLEX Business Forms

including

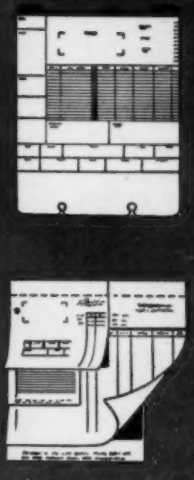


SNAP 'N PART

Carbon-Interleaved Sets



Federal designs and prints forms to solve *your* business problems. We *specialize* in complicated carbon-interleaved sets of all sizes and combinations of sizes. And because we use only the fastest, most modern machines available, you can depend on us for finer precision-printing—*and* prompt delivery. Federal prices are attractive. Why not have us quote on your next job?



FEDERAL DESIGNS AND PRINTS multiple carbon forms . . . carbon-interleaved statements . . . voucher and payroll checks...spot carbon and die-cut carbon forms... business machine forms.

FREE FORMS FOLDER Federal Business Products, Inc.
DEPT. A
90 Gold Street, New York 38

Send me your free illustrated folder, "Short Cuts in Business Forms"

NAME_____

ADDRESS_____

CITY_____ ZONE____ STATE_____

FEDERAL Business Products, INC. PRINTERS OF BUSINESS FORMS SINCE 1926

90 GOLD ST. • NEW YORK 38 • CO 7-8850

MARR . . . EASY TO USE CHEAPER TO USE



ASK US FOR PROOF

By every test and comparison there's nothing like a *fine* MARR Mimeo-Duplicater . . . to fit every budget, every office, every job!

Let us show you by *demonstration* how the New MARR pays for itself through savings of time and supplies.

MARR "20th Century"
Electric
STENCIL PRINTING PRESS
Up to 12,000 prints an hour. *Versatility, speed, accuracy, cleanliness, economy.* $795*



MARR "Monarch"
Electric operated to 6,000 prints an hour. Automatic feed, inking and counting . . . $430*. Hand operated . . . $295*

MARR "Mercury"
Electric
Prints up to 7,000 an hour. Variable speed, fully automatic, exclusive ink system. $550*

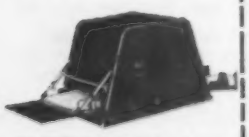




MARR "Fleetwing"
Clean, accurate, automatic, exclusive inking system. With electric drive at $315* or hand drive at $180*

IMPORTANT MARR FEATURES: Positive single sheet feed, NO DOUBLES. Full ream printing, NO WASTE. Run widest variety of stocks, post card to 9x16", varying weights and "folders." Automatic paper alignment. Automatic roller release. Automatic count of printed sheets.

Impartial performance tests by industry, office management and government personnel have proved beyond doubt that MARR Mimeo-Duplicators print more perfect copies, in less time, at lowest cost.



MARR "Style"
Convertible, folds when not in use. Quality with thrift, perfect printing. Has no equal at $87.50*

*Excise tax additional

MAIL THIS COUPON TODAY!

MARR DUPLICATOR CO., Inc.
53 PARK PLACE, NEW YORK 7

☐ Please send me more information about MARR Mimeo-Duplicators.
☐ I would like a demonstration in our office.

Name.....
Company.....
Street.....
City.....*State*.....

KOH-I-NOOR LEADS & HOLDERS



2200 Koh-I-Noor Graphite Leads
17 Degrees of Accurate Grading
Recognized by Draftsmen the World Over for Dependable Service
Packed Six of a Degree in a Protective box
Smoothness, Strength, Uniformity combined with long lasting qualities

AND NOW

2200 KOH-I-NOOR FLEXICOLOR LEADS

"The Lead That is Really Flexible"
UNSURPASSED BREAKING STRENGTH
SEVEN COLORS AND COMBINATION OF RED AND BLUE — RED AND YELLOW

★

All the above leads for use in 1504, 1511, 5611 or 5612 Holders

By the Makers of The Famous KOH-I-NOOR DRAWING PENCILS

KOH-I-NOOR PENCIL COMPANY, INC., BLOOMSBURY, NEW JERSEY

IF YOU ARE NOT NOW RECEIVING A PERSONAL COPY OF PURCHASING EACH MONTH

You are missing in every issue of PURCHASING seven services that would cost hundreds of dollars if bought separately—

1. **Washington Report for Purchasing Agents**
2. **Poll of Purchasing Opinion on Current Purchasing problems**
3. **Price, Production, Inventory Statistical Analysis that help you foretell price changes**
4. **Inventory (illustrated) of new products**
5. **Forms that lubricate purchasing department operation**
6. **Free catalog service**
7. **Purchasing Legal Service—interpretation of latest legal decisions affecting purchasing**

Fortune favors the man well-informed in his own profession.

You can get the full benefit from the wealth of valuable information in PURCHASING by receiving it personally each month. Just fill in, clip, and mail this coupon.

PURCHASING, 205 E. 42nd St.
New York 17, N. Y.

So that I will receive PURCHASING without delay each month, and in order that I may keep and clip it, send it to me personally as noted below—$4 for one year.

Mr. .....

Title .....

Company .....

Address .....

(Continued from page 263)

A private telephone line between the dictator and secretary: He can talk with her through his dictation telephone without using the regular telephone system, and there is no chance of anyone's listening in.

NEW "HAND" CALCULATOR IS FAST, ACCURATE



The Curta, a new portable calculator will add, subtract, multiply, divide, figure square roots, factors, cubes and percentages. It is as easy to operate as a slide rule. Extremely accurate, the new device carries to five decimal places and total to 99 billion. Figures can be checked and re-checked on three sets of dials.

Although it weighs only eight ounces, it is claimed that the device will do as much as electric desk calculators costing up to six times as much. Complete information is available from the Curta Calculator Company, 5543 South Ashland Avenue, Chicago, Ill.

COPYING SOLVES RECORD MAINTENANCE PROBLEMS

Eleven different record maintenance problems faced by various industries are described in a new booklet — "Dexigraph Photocopy Service".

Among the problems is one where a government agency had to reduce an 8" x 6" record to a 5" x 3" card. Typing new cards was limited by a time factor; ordinary photographic reproduction methods reduced the identifying name illegibly. The quick, simple and inexpensive flexibility of Remington Rand Dexigraph Photocopy equipment permitted same-size name but the rest of the record reduced, with one photographic exposure and one record handling.

Other problems described show the speedy duplication of bank signature cards to the changing of record sizes in order to convert from hand to machine posting.

"Dexigraph Photocopy Service" —Bulletin BSD-4 is available from Remington Rand Inc., 315 Fourth Avenue, New York 10, New York.

IN THE FINEST OFFICES . . . CRESTLINE, OF COURSE



appearance, too, is a factor...

You, of course, have a real respect for your employees, and as a good businessman, recognize that good looking surroundings as well as proper equipment have a definite influence on office efficiency. Why not let your Security Steel Dealer show you the *designed* efficiency of CRESTLINE Office Furniture. We think you will agree that it is a wise investment in getting and keeping good office personnel.

Crest LINE
by SECURITY STEEL EQUIPMENT CORPORATION
AVENEL, NEW JERSEY

Created by
SECURITY STEEL EQUIPMENT CORP., AVENEL, NEW JERSEY



She's all tied up . . . in poor system

How she cut loose



with Moore Fanfold set . . . 1 typing



instead of 4 systems . . . 4 typings

It wasn't a strait jacket but *felt* like one — the office system that kept her and the rest of the staff strapped in low efficiency. It slowed progress and caused expensive errors. Red tape held up movement of customers' orders.

Everybody "cut loose" after a Moore man was invited in. He looked at 4 forms that were causing tie-ups. In their place, he designed a continuous Moore Fanfold form. It combines — in one typing — order, invoice, duplicate invoice, shipping order, packing list and label. It saves 3 typings, prevents delays and fills orders faster.

Got a problem like it? Call in the Moore man today. He offers you the *widest* range of forms. More than that, he is trained to design for you *the right business form for every form of business.*

MOORE BUSINESS FORMS, INC.

Niagara Falls, N. Y. □ Denton, Tex. □ Emeryville, Calif. □ Over 300 offices and factories across U. S. and Canada



Sales Books for Every Business Operation | Continuous Interleaved Typewriter Forms | Continuous Register Forms | Registers | Fanfold Billing Machine Forms | Speedisets for Fast Carbon Extraction | Marginal Punched Business Machine Forms

"4 in a series . . . *"How to Get Your Money's Worth in Work Gloves"*

IT'S A Riegel PRODUCT





Even the box is better...

What goes *into* the box is the thing that may interest you most, but to make sure that your customers get complete satisfaction from better Riegel work gloves, we put them in a box that's also better. It is the only completely sealed package in the work glove industry . . . and this cuts down on pilferage in stock room or warehouse. The gloves are packed in the box under pressure to keep their shape and stay fresh, clean and attractive . . . no mussing or crumpling in transit or storage.

No matter how you look at Riegel work gloves . . . from the cotton fabric which we make ourselves, right through to the finished product and packaging . . . these work gloves give your customers their money's worth . . . in quality, comfort, long wear and all-around satisfaction. Compare Riegel work gloves from all angles . . . and prove this for yourself!

FREE



WRITE FOR

illustrated catalog and names of our local distributors.

Riegel

...more for your money in work gloves

RIEGEL TEXTILE CORPORATION • 260 Madison Avenue • New York 16, N. Y.

AMONG THE Associations



Upstate New York Buyers Conference At Elmira Sets New Attendance High

The third annual Purchasing Agents Conference sponsored by the Associations of Buffalo, Eastern New York, Elmira, Rochester, and Syracuse, was held at the Mark Twain Hotel, Elmira, March 27 and 28. Attendance set a new high record, in numbers and enthusiasm. The Buffalo contingent, finding that they had a quorum in their special car, held a business meeting enroute to the conference and voted in seven new members, bringing that Association comfortably over the 200 mark. All those attending were well repaid by the two-day program, which offered practical and diversified discussion fare, ably presented, and held the attention and interest of the gathering from start to finish.

T. R. Coyle, President of the Elmira Association and General Conference Chairman, presided at the opening banquet session. Leon R. Matson of Corning Glass Works welcomed the visitors to Elmira, and a musical program was given by the 60-voice glee club of Elmira College.

Speakers at this session were the national officers of the Association. District Vice President George L. Brown spoke on "The Purchasing Agent as a Salesman", and N.A.P.A. President C. F. Ogden discussed "Today's Purchasing Agent."

Willard Hoffman of the Syracuse Association presided at the Friday morning session, introducing three speakers who brought exceptionally timely and important reports to the conference.

Col. Walter R. Godard, of the Industrial College of the Armed Forces,

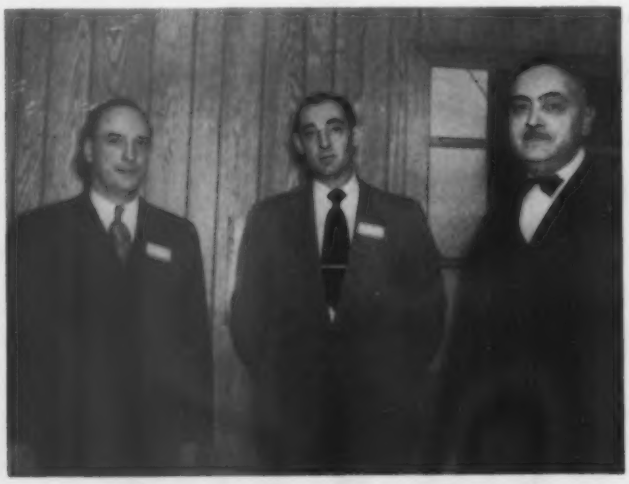
(*Please turn to page 274*)



Program Chairman A. Kemp Stevens.



N.A.P.A. officers: Executive Secretary George A. Renard, Past President H. F. Jones, and District Vice - President George L. Brown.



Discussion leaders on ethics: (l. to r.) A. C. Freimann, Harry H. Martin, presiding officer, Stuart .F Heinritz.



The Mark Twain Hotel ballroom was the scene of the luncheon and banquet sessions.

More Help Now Available to You with the . . . GOULD Plus-Performance Plan

New FREE Check-Chart for Battery Maintenance Men

Just what you need for your battery room! Establishes rules to follow, eliminates hit-and-miss maintenance methods, guides new help, reduces training time, assures continuous battery care, prolongs battery life, cuts accidents. Size 17" x 22". Printed on heavy stock and varnished for durability and easy cleaning.



Here is the latest addition to GOULD PLUS-PERFORMANCE PLAN service. Used in conjunction with the Plan's vast library of articles, bulletins, specifications, manuals, record cards, charts and graphs, this battery maintenance check-chart makes it even more possible to improve battery performance as much as 50%, increase output, save man-hours and cut costs. Like all GPPP material, it's FREE to users of the Plan.



Gould "Thirty" with "Z" Plates—
America's Finest
Industrial Truck Battery

Mail this Coupon Today

BATTERY MATERIALS ARE SCARCE—AND GETTING SCARCER EVERY MONTH! IF YOU NEED BATTERIES, LET US QUOTE ON YOUR REQUIREMENTS NOW.

GOULD
STORAGE BATTERIES

GOULD-NATIONAL BATTERIES, Inc.
Trenton 7, New Jersey

Always Use Gould-National Automobile and Truck Batteries

GOULD-NATIONAL BATTERIES, INC., Trenton 7, N. J.

Please send full information on the GOULD PLUS-PERFORMANCE PLAN including FREE check-chart for Motive Power Battery maintenance.

NAME_____

FIRM_____

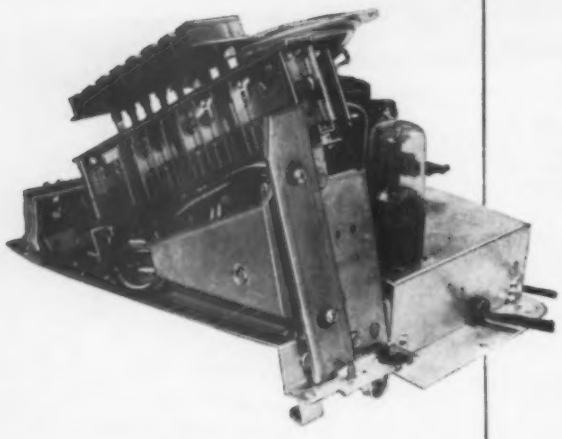
ADDRESS_____

CITY_____ ZONE_____ STATE_____

This man can show you . . .



How to pick up extra savings with *simpler* P-K assembly plus power driving



Portable electric drivers are used to speed assembly of this inter-office communication set, because mis-threading worries are eliminated. The 28 P-K Hex Head Type Z and Phillips Head Type Z Screws drive easily, set up securely, can be removed and replaced when necessary. Fastenings are made in 18 gauge CRS and aluminum die-casting.

Ask a P-K Assembly Engineer where you can take further advantage of power driving. Often, a switch to P-K Screws gives production a *double* lift. You save the time for needless tapping, bolting, riveting, or inserts in plastics. You also find that the *simpler* P-K method permits use of power driving to further speed assembly.

With the experience of more than a million applications to guide him, a P-K Assembly Engineer can quickly provide the answer to this, and other questions about making your assemblies better, faster, stronger, and at lower cost.

Today, more than ever, the P-K Assembly Engineer is a good man to have on your production team, helping you boost output and beat the squeeze on profits. He'll call at your request. Parker-Kalon Corporation, 200 Varick St., New York 14.



This Bulletin on Power Driving will help you determine which type is best for your work. Describes and illustrates the various basic types of electric, air-operated and impact tools, as well as the automatic hopper-fed machines for screw driving in common use. Also useful information on proper bit and socket selection. Free on request. Ask for Form 401.



Your INDUSTRIAL SUPPLY DISTRIBUTOR . . . *your local source for P-K Screws . . . works side by side with the P-K Assembly Engineer. Their combined efforts are solving many difficult problems of planning and procurement. Let them help you.*

P-K
TRADE MARK
REG. U.S. PAT. OFF.

PARKER-KALON®

The Original **SELF-TAPPING SCREWS**

FOR EVERY METAL AND PLASTIC ASSEMBLY



Put this man on your Procurement Team

Your INDUSTRIAL DISTRIBUTOR can help you score extra savings in changing markets

How to buy in changing markets is a perennial puzzle for plant purchasing men. It takes uncommon shrewdness and foresight to avoid the twin pitfalls—too much or too little.

Watch the buyer who always seems to be sitting pretty when the market changes. You'll find he invariably has the local Industrial Distributor on his procurement team. The reasons are obvious and sound.

With his convenient, local stocks of industrial supplies, the Distributor offers you real savings . . . lower purchasing expense because paper work is simplified . . . reduced investment in inventory . . . negligible loss for depreciation and obsolescence.

With his broad experience as a supply specialist the Distributor can show you the best way to *plan* buying to make sure of getting the goods you need, when you want them.

But, beyond that, the Distributor is a *local* businessman. His own success depends on the success of the customers he serves. It's good business for him to sell those products only which offer you the best value.

You need his expert information on changing markets today, more than ever. Let him help you.
Parker-Kalon Corporation, 200 Varick St., New York 14.

PARKER-KALON®

The Original **SELF-TAPPING SCREWS**

Cold-forged **SOCKET SCREWS**

AND OTHER FASTENING DEVICES

Where you see this emblem, you will find a top-rated Parker-Kalon Distributor, a good man to have on your procurement team, working with you to streamline your supply buying.

ACCREDITED DISTRIBUTOR PARKER-KALON PRODUCTS



W. A. Sredenschek and Mayor Wemple of Schenectady.



Mayor Clark of Albany (l.) and Stuart F. Heinritz.



Erle A. Phelps and George Brown, District 8 V.P.

Eastern N. Y. Association Holds Executive Night Meeting



Left to right: Mayor Clark, A. K. Munson, R. H. Van Laer, George Meineker, D. H. Cornell, and Harold H. Frair.



Harry T. Lieberman, retiring president.



F. Albert Hayes, center, with J. P. Bentz, Frank Plumley, Ernest Allison, and C. S. Pedersen, all of Bigelow-Sanford Carpet Co.



J. L. McCormack



The James McKinney & Sons, Inc. table.

Marking its 32nd anniversary, the Purchasing Agents Association of Eastern New York held its Eighteenth Annual Executive Night Meeting in the DeWitt Clinton Hotel, Albany, N. Y., Thursday, March 20th, with an attendance of 230 made up of company executives, special guests, and purchasing men.

The principal speaker following dinner was the Honorable Harold C. Kessinger of Ridgewood, New Jersey, who gave a pithy humorous discourse on the social and economic conditions.

The meeting was presided over by President Harry T. Lieberman, who in the course of reviewing the activities of the National Association of Purchasing Agents stated that the Purchasing Agents Association of Eastern New York now has 100 regular members and 25 associate members. He urged that all members take more active part in the regular meetings, stating that they have practical ideas that would be helpful to others, "but all of us are missing a great deal because we do not hear from you." In this connection he stated that the Education Committee is now setting up a special program that will be of tremendous benefit to all who take advantage of it. He also read a letter from former Vice President Harry Erlicher of General Electric Company who is now in Government service at Washington.

Following reports of various officers, Wm. J. Sharpe, chairman of the nominating committee, presented the following slate of officers for the 1952-53.

National Director, Harry T. Lieberman, The Woodward Co., Albany.

President, Wm. A. Sredenschek, General Electric Co., Schenectady.

Vice President, Joseph A. McCormack, Albany Felt Co., Albany.

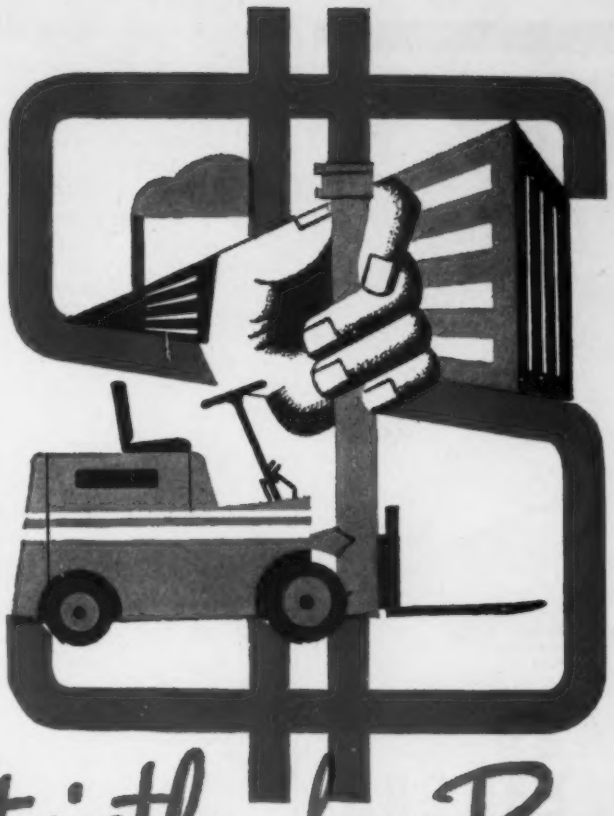
Secretary, Kenneth B. Gordinier, American Meter Co., Albany.

Treasurer, William C. Bryant, Jr., National Commercial Bank & Trust Company, Albany.

Executive Committee: Erle A. Phelps, West Virgina Pulp & Paper Co., Mechanicville, N. Y., Frank E. Plumley, Jr., Bigelow Sanford Carpet Co., Amsterdam, N. Y.; Peter J. Endres, B. T. Babbitt, Inc., Albany, N. Y.

CONTACT THE CLARK DEALER NEAREST YOU

ALBANY (LATHAM), NEW YORK
INDUSTRIAL TRUCK SALES, INC.
BALTIMORE 2, MARYLAND
FALLSWAY SPRING & EQUIPMENT CO.
BIRMINGHAM, ALABAMA
M-H EQUIPMENT COMPANY
BOSTON (MALDEN 48), MASSACHUSETTS
BRODIE INDUSTRIAL TRUCKS, INC.
BUFFALO 2, NEW YORK
BRODIE INDUSTRIAL TRUCKS, INC.
CHICAGO 4, ILLINOIS
MODERN HANDLING EQUIPMENT INC.
CINCINNATI 9, OHIO
ROBERT C. YOUNG & CO.
CLEVELAND 11, OHIO
MATERIAL HANDLING EQUIPMENT CORP.
COLUMBUS, OHIO
EDWARD J. SHERRY CO.
DALLAS, TEXAS
T. G. FRAZEE
DAVENPORT, IOWA
BIG RIVER EQUIPMENT COMPANY, INC.
DENVER, COLORADO
J. N. MEADE
DES MOINES, IOWA
BIG RIVER EQUIPMENT COMPANY, INC.
DETROIT 2, MICHIGAN
MATERIAL HANDLING SALES CORP.
EUGENE, OREGON
PRESTON FALLER COMPANY
EVANSVILLE 13, INDIANA
W. A. MARSCHKE & SONS, INC.
FARGO, N. DAKOTA
SWEENEY BROTHERS TRACTOR CO.
FT. WILLIAM, ONTARIO
J. H. RYDER MACHINERY CO., LTD.
FRESNO 1, CALIFORNIA
ROBERT H. BRAUN COMPANY
GREEN BAY, WISCONSIN
WISCONSIN INDUSTRIAL TRUCK CO., INC.
GREENSBORO, NORTH CAROLINA
INDUSTRIAL TRUCK SALES & SERVICE CO.
HONOLULU, T. H.
PRESSED STEEL CAR CO., INC.
HOUSTON 2, TEXAS
T. G. FRAZEE
INDIANAPOLIS 5, INDIANA
W. A. MARSCHKE & SONS, INC.
JERSEY CITY 2, NEW JERSEY
JERSEY INDUSTRIAL TRUCKS, INC.
KANSAS CITY 8, MISSOURI
LIFT TRUCK SALES & SERVICE, INC.
LITTLE ROCK, ARKANSAS
FRED J. VANDEMARK CO.
LOS ANGELES 22, CALIFORNIA
ROBERT H. BRAUN COMPANY
LOUISVILLE 7, KENTUCKY
W. A. MARSCHKE & SONS, INC.
MEMPHIS, TENNESSEE
FRED J. VANDEMARK CO.
MILWAUKEE 10, WISCONSIN
WISCONSIN INDUSTRIAL TRUCK CO., INC.
MINNEAPOLIS 7, MINNESOTA
MATERIAL HANDLING ENGINEERS
MONTREAL 9, QUEBEC
J. H. RYDER MACHINERY, REG'D.
NEW HAVEN 15, CONNECTICUT
C. E. REUTTER CORPORATION
NEW ORLEANS, LOUISIANA
M-H EQUIPMENT COMPANY
NEW YORK 14, N. Y.
BOND INDUSTRIAL EQUIPMENT SALES COMPANY, INC.
NORFOLK, VIRGINIA
WILSON INDUSTRIAL EQUIPMENT, INC.
OAKLAND 3, CALIFORNIA
GLEN L. CODMAN CO., INC.
PHILADELPHIA 22, PENNSYLVANIA
BRODIE INDUSTRIAL TRUCKS, INC.
PHOENIX, ARIZONA
ROBERT H. BRAUN COMPANY
PITTSBURGH 33, PENNSYLVANIA
MATERIAL HANDLING, INC.
PORTLAND, MAINE
BRODIE INDUSTRIAL TRUCKS, INC.
PORTLAND 5, OREGON
PRESTON FALLER COMPANY
ST. LOUIS 8, MISSOURI
MATERIALS HANDLING EQUIPMENT CORP.
SALT LAKE CITY, UTAH
ALBERT J. ISAACSEN COMPANY, INC.
SEATTLE WASHINGTON
PRESTON FALLER COMPANY
SIOUX FALLS, SOUTH DAKOTA
STAN HOUSTON EQUIPMENT
SOUTH BEND 14, INDIANA
MATERIALS HANDLING EQUIPMENT CORP.
SPOKANE, WASHINGTON
PRESTON FALLER COMPANY
SYRACUSE 2, NEW YORK
BRODIE INDUSTRIAL TRUCKS, INC.
TAMPA, FLORIDA
WHITMORE INDUSTRIAL TRUCKS
TOLEDO 4, OHIO
KERN TRUCK SALES, INC.
TORONTO 5, ONTARIO
J. H. RYDER MACHINERY CO., LTD.
TULSA 6, OKLAHOMA
ARST EQUIPMENT COMPANY
VANCOUVER, B. C.
NATIONAL MACHINERY COMPANY, LTD.
WASHINGTON 5, D. C.
CLARK EQUIPMENT COMPANY
WINDSOR, ONTARIO
J. H. RYDER MACHINERY CO., LTD.
WINNIPEG, MANITOBA
J. H. RYDER MACHINERY CO., LTD.



Strictly for Profit

CHOOSE CLARK

Solely on the basis of *benefit to your business* take a thoughtful look at the Five Factors of Profit built into Clark machines:

1. **TIME PROFIT**—Materials move faster, and in synchronized flow. Man-hours for loading and unloading are reduced drastically.
2. **SPACE PROFIT**—Idle space becomes profitable storage capacity.
3. **TURN-OVER PROFIT**—Speeding up the production cycle improves the inventory picture, conserves working capital.
4. **MANPOWER PROFIT**—Human productivity is sharply increased to offset shrinking manpower. Workers prefer the better jobs.
5. **SERVICE PROFIT**—Prompt, efficient service, provided by Clark's nationwide organization. *Keeps equipment working.*

Any way you look at it, your Clark investment gets you a solid, profitable "most for your money."



There's a most profitable time to look into it—RIGHT NOW! All the literature items are designed for your profit. Please use the coupon to order them.



INDUSTRIAL TRUCK DIVISION • CLARK EQUIPMENT COMPANY • BATTLE CREEK 23, MICHIGAN

Please send: ☐ Movie Digest ☐ Safety Saves ☐ Basic Facts ☐ Material Handling News

Name_____

Firm Name_____

Street_____

City_____ Zone____ State_____

AUTHORIZED CLARK INDUSTRIAL TRUCK PARTS AND SERVICE STATIONS IN STRATEGIC [illegible]



HAND CLEANERS

Skilled hands are a valuable asset to management, as well as an important responsibility of it. Mione Hand Cleaners can insure that asset by helping to share the responsibility for keeping skilled hands in prime working condition.

WORKERS like the quick-lathering, gentle-scrubbing, easy-rinsing action of Mione. And its very definite skin conditioning value.

MANAGEMENT likes the safe, sanitary, efficient, trouble-free Mione features, plus its economy per pound, low cost per scrub-up, and the basic economy of skilled hands always at top productivity.

YOUR SUPPLIER of washroom needs can give you full particulars about Mione so that you, too, can benefit from the know-how gained from 40 years of making nothing but better and better soap for the hands.

WRITE US FOR THE NAME OF THE MIONE SUPPLIER IN YOUR AREA

Mione

MANUFACTURING COMPANY

Makers of famous hand soaps for 40 years

COLLINGDALE PENNSYLVANIA

ELMIRA CONFERENCE

(*Continued from page* 268)

Washington, D. C., a dynamic speaker and international authority on world affairs, brought the meeting up to date on "Geo-Politics of the U.S.S.R."

Harry Marley, recently returned from the Far East, which he visited as a member of the GSA Commission to study scrap resources and recovery in Japan, Korea, Okinawa, Formosa, and India, spoke on "Scrap Around the World."

W. H. Cordes, Staff Manager of the American Steel & Wire Div., U. S. Steel Corp., described the new Fairless Works of USS, now under construction at Morrisville, Pa.,—"The Steel Plant of Tomorrow"—and told what this new facility on the eastern seaboard would meet in better balanced steel distribution, especially benefitting steel buyers and users of the northeastern area.

A. Kemp Stevens of Syracuse, General Program Chairman of the conference, presided at the luncheon meeting. Speakers at this session were William C. Truppner, Deputy Assistant Administrator of Production Control, NPA, Washington, who explained the "stretch-out" of the defense program and its effect in easing material supplies for 1952, and Executive Secretary George A. Renard of N.A.P.A., who gave a rapid-fire analysis and interpretation of the current economic and political scene.

Harry H. Martin of Buffalo was in charge of the afternoon session. The opening feature was a double-barreled discussion of "Ethics in Buying and Selling", with Stuart F. Heinritz of PURCHASING presenting the buyers' viewpoint and Andrew C. Freimann, General Sales Manager of Delco Appliance Div., General Motors Corp., as spokesman for the sales group.

Roger E. Gay, President of the Bristol Brass Corp., Chairman of the Industrial Problems Committee of N.A.M., and President of the American Standards Association, was the next speaker. His topic was "Standards: Pattern for Planned Purchasing." He reviewed briefly the advantages of standardization as an aid to procurement and manufacturing economies, and explained the operations of ASA in the development of practical standards for materials and products.

Quality control was the third topic of discussion, with two speakers participating. Major Munson H. Pardee of the Quality Control Division, Hq. Air Material Command, Dayton, outlined the uses of statistical control methods as the basis for acceptability of purchased components. Clarence R. Burdick, Quality Analyst, Ford Motor Company, then told how these procedures are applied in his company in the certification of vendors.

Joseph L. Ernst of Rochester was presiding officer, and Leo Williamson of Williamsport, Pa., served as toastmaster, at the concluding banquet session. The banquet address was given by Dr. Martin

(*Please turn to page* 280)

ANNOUNCING THE

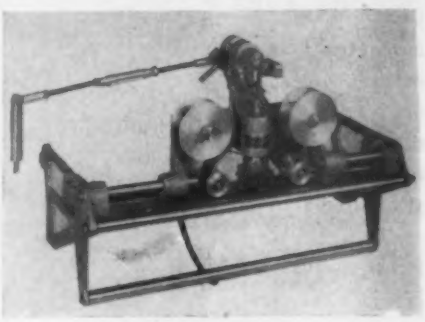
RAINBOW

TRANS-LEAF

CODING ATTACHMENT

for your present

PACKAGING MACHINES



FEATURES

For leaf printing with continuous and intermittent packaging machines that do overwrapping.

- **The "Rainbow" imprints codes, prices, etc., in all colors.**
- **Attached to and takes motion from machine itself.**

  Makes permanent imprint thru roll leaf with heated metal type.
- **Adjustable to feed minimum requirements of roll leaf (no waste).**
- **Spot prints accurately directly on cellophane, glassine, wax paper, pliofilm, foil, etc.**
- **No ink. No make-ready. Minimum maintenance.**
- **Attachments built for Hayssen, Battle Creek, Stokes Wrap, Trans Wrap, Hudson Sharpe and similar machines.**
- **Especially suitable to and gives wonderful results on wrapped Bacon, Bakery Products, Fish, Frozen Food, etc.**
- **Send us your Code Dating or Marking problems and we will furnish recommendations.**

. . . and add the

WHIPPET MARKER

to your conveyor line

Automatically dates, codes, or marks production runs of cartons, packages . . . readily adapted to present conveyor lines.

Friction between Marker and moving package or carton will imprint date, code or any other information. Will automatically spot-print legend. No oscillation of printing drum.

Inking through felt roller with self-contained reservoir. Interchangeable rubber type.

Used by candy manufacturers, distillers, oil companies, food packers, etc., to mark filled bags, cartons, boxes, rolls, cans, etc.

Send for "Free" Catalogue to Dept. F.E. We make machines to print corrugated cartons and multiwall bags that are filled or flat.

THE INDUSTRIAL MARKING EQUIPMENT COMPANY, INC.

454 Baltic Street, Brooklyn 17, N. Y.

MAin 4-2601

FAMOUS DE-ION ARC QUENCHER IN ACTION

Dare to Compare!



THE SIMPLEST, THE TOUGHEST,
THE MOST DEPENDABLE
MOTOR CONTROL EVER BUILT

WESTINGHOUSE MOTOR CONTROL

READY PROTECTION .

COMPARE this industry-proved superior design

- Simplified Mechanism . . Only One Moving Part
- Advanced Magnet Design . . Withstands Vibration and Impact
- Kickout Spring Assures Positive Operation
- Bi-Metallic, Snap-Action, Disc-Type Overload Relay
- Relay Can Be Set for "Automatic", "Hand", "No Stop"
- Compact Design; NEMA Standard Wiring and Mounting Dimensions
- Simplified Straight-Through Wiring
- Pressure-Type Connectors Speed Installation
- Heavy-Duty, Silver-to-Silver Contacts
- All Parts Front Removable . . Simplifies Maintenance





"DE-ION" ARC QUENCHER

- Confines, Divides and Extinguishes Arc in ½ Cycle or Less
- Retards Burning and Pitting of Contact Surfaces
- Lengthens Life of Motor Controls
- Protects Capital Equipment
- Helps Assure Capacity Production Schedules

Exclusive
Only Westinghouse Offers This Feature

Westinghouse offers the most complete line of motor control in industry, a key to the success of your production goals. Two-point reliability—proved efficiency and stamina—assures an up-to-the-minute job of controlling and protecting motors.

There is, for example, a control station for any application . . Heavy-Duty Pushbuttons, Standard-Duty Pushbuttons, "Oil-Tite®" Pushbuttons, a-c or d-c.

In addition, there is a full line of magnetic and manual controls, standard or special, for all industries such as automotive, machine tool, steel, textile, petroleum, chemical and mining.

All Westinghouse Control meets or exceeds NEMA Standards.

For outstanding service on negotiations and deliveries, call your nearest Westinghouse representative, or write direct to Westinghouse Electric Corporation, P.O. Box 868, Pittsburgh 30, Pennsylvania.

for rugged production schedules

WESTINGHOUSE CONTROL FOR THE PROTECTION OF ANY MOTOR

MAGNETIC CONTROLS

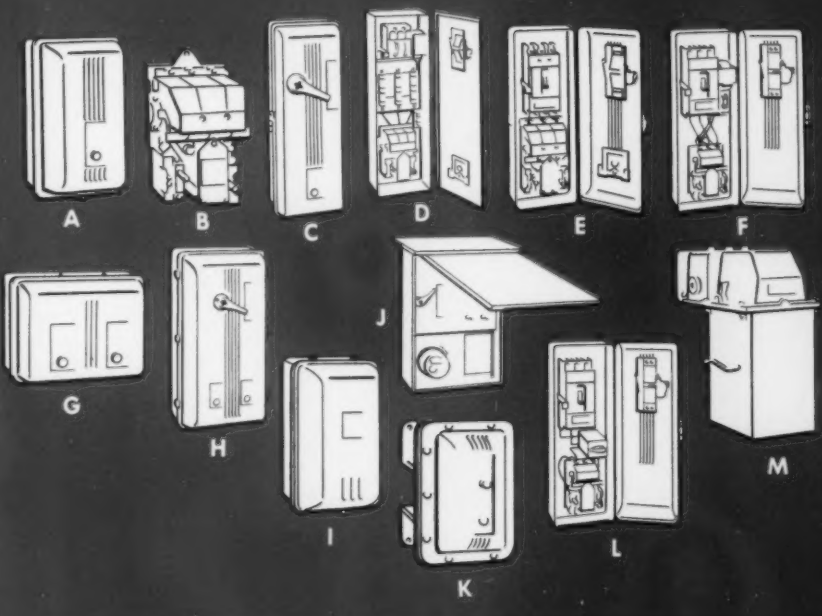
- A Life-Linestarters®
- B Open Life-Linestarters and Contactors
- C Plain Disconnect Combinations
- D Fusible Combinations
- E AB Breaker Combinations
- F JIC Life-Linestarters
- G Reversing Life-Linestarters
- H Fusible or Breaker Combination Reversing Life-Linestarters
- I Multi-Pole Contactors (Relays)
- J Oil-Well Pumping Controls
- K Cast-Iron Enclosures for Starters
- L Cotton Card Controls
- M Oil-Immersed Linestarters
  Reduced Voltage Starters
  Control Centers

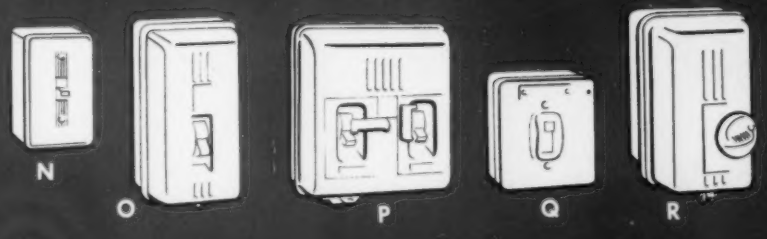
MANUAL CONTROLS

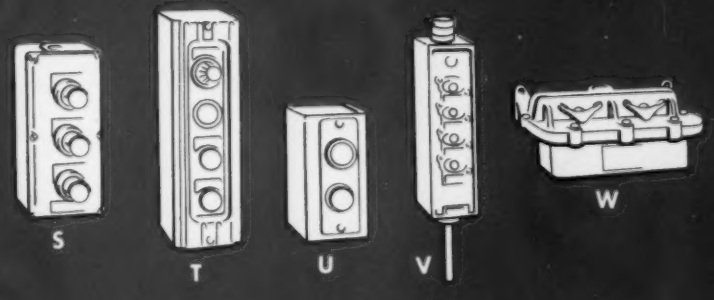
- N Motor Sentinels*
  (also available with indicating light)
- O Motor Watchmans
- P Reversing Motor Watchmans
- Q Motor Snap Switches
- R NEMA IA Manual Starters
  Reduced Voltage Starters
  *T.M.

CONTROL STATIONS

- S Oil-Tite Control Stations
- T Heavy-Duty Pushbuttons
- U Standard-Duty Pushbuttons
- V Pendent Pushbuttons
- W Oil-Immersed Pushbuttons







YOU CAN BE SURE... IF IT'S

Westinghouse

MOTOR CONTROL

Assign these Westinghouse controls to your TOUGHEST JOBS!

Whatever your heavy-duty control demands, this Westinghouse line offers a more suitable device for top control performance! All have sturdy, trouble-free design . . . characteristic of Westinghouse products! Each control device assures accurate, reliable performance—even in intricate control arrangements.

A LOOK AT THE LINE . . .

LIMIT SWITCHES . . Name a switching function . . . these switches apply! They'll slow down, stop, alter machine motion during its cycle or provide interlocking action. Shown at right is the Type LS Switch . . . just one of many types for your limit switch need.

D-C FIELD RHEOSTATS . . For use with d-c motors and generators. Give fine adjustment of direct current speeds up to approximately 200 hp . . . regulate exciter and generator voltage up to approximately 300 kw. Include features which provide better insulation, greater shock resistance, and more direct contacts with less current density.

UNIT TERMINAL BLOCKS . . When control panels and switchboards need versatile, tailor-made assembly, Westinghouse terminal blocks provide the needed safety and wiring flexibility. These blocks are easily assembled in groups of from 1 to 75 . . . each unit having a flat surface for circuit identification. Available in 25 and 50-ampere sizes, suitable for any voltage up to 600 volts, a-c or d-c. A typical terminal block is shown at right.

CONTACTORS . . TYPE M . . These dependable contactors range from 25 to 1350 amperes. Features such as knife-edge bearing, copper current carrying parts, Quik-Quench arc box, unit construction and unit mounted interlocks are but a few factors making Type M a trouble-free, reliable contactor. Their top performance has been proved on the toughest jobs!

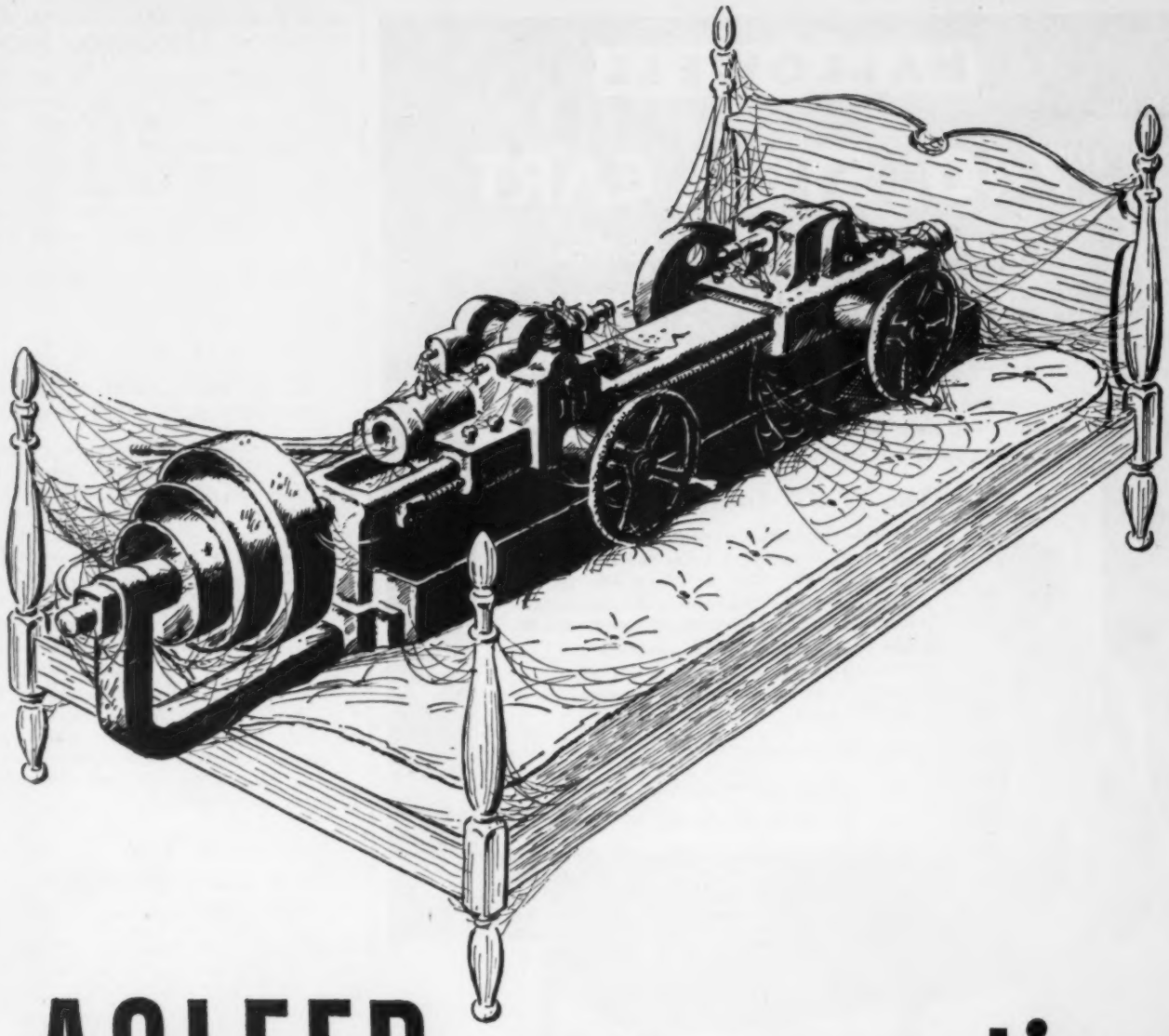
RELAYS . . Name the type relay you need . . . time limit—overload—vibrating or auxiliary . . . in the Westinghouse line you have a wide range from which to choose. Shown here are a few of the types available. Each has qualities of sturdiness, precision and dependability . . . your assurance of top relay performance.

For full information on any or all of these Westinghouse devices . . . ask your Westinghouse representative or write Westinghouse Electric Corporation, P.O. Box 868, Pittsburgh 30, Pa. J-21672

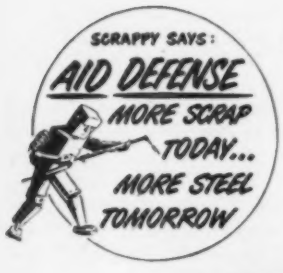


YOU CAN BE SURE... IF IT'S Westinghouse

WESTINGHOUSE ELECTRIC CORPORATION
STANDARD CONTROL DIVISION, BEAVER, PA.
MOTOR & CONTROL DIVISION, BUFFALO 5, N. Y.



ASLEEP...on your time



An obsolete or worn-out machine, stuck away, sleeping and forgotten in a corner of your plant, is costly.

It is not doing you or anyone else any good. It is taking up valuable space.

Call in a scrap dealer and let him haul away your dormant scrap. It will help to supply the tons of additional scrap that is needed if the country's steel furnaces are going to continue working at full capacity.

Today there are millions of tons of dormant scrap hidden away in plants and factories, and on farms.

If the steel mills can get that scrap, the steel supply picture will be very much brighter, with more steel for everybody. Call in a scrap dealer today!

BETHLEHEM STEEL

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

More Scrap Today...More Steel Tomorrow

HALLOWELL

"740" STEEL CART

has *looks* for store and office

stamina for shop and factory

The "740" carries everything from stationery and supplies to tools and dies. Its *large capacity* saves countless steps and time. Its *compact design* is made for narrow aisles and limited space.

The "740" Features

- detachable handle—use it either end
- two trays with deep sides for safe handling—16" x 30" or 24" x 36"
- legs with unique double-angle construction—for extra strength without extra weight
- ball bearing caster races—making steering easy
- sturdy, free-rolling casters—making pushing easy

Write for literature

STANDARD PRESSED STEEL CO.

Jenkintown 31, Pennsylvania



Shipped Knocked Down—IT'S EASY TO ASSEMBLE

A sturdy fiber container makes sure it arrives in good condition. Only 11 parts to fasten together. Just use a small socket or open end wrench. All necessary fasteners are included in the package. A few minutes' work and your "740" is ready to make life easier.

HALLOWELL MATERIALS HANDLING DIVISION

SPS

JENKINTOWN PENNSYLVANIA

NEW ENGLAND ASSOCIATION HAS "NATIONAL ASSOCIATION NIGHT"

The April 14 meeting of the New England Purchasing Agents Association, held in Hotel Vendome, Boston, was "National Association Night" meeting. Chester F. Ogden, president of the National Association of Purchasing Agents, and Laurence A. Fagan, vice-president for District 9, N.A.P.A. were guest speakers.

Subject at the afternoon meeting was "Standards in Buying and Selling."

CINCINNATI ASSN. VISITS PROCTER & GAMBLE PLANT

Members of the Cincinnati Association of Purchasing Agents toured the Ivorydale and Drug Products plants of The Procter and Gamble Company on Tuesday, April 8. They saw the kettle house and the hydrolizers where fats are processed and turned into soap. They also saw the manufacture and packaging of Camay and Ivory soaps, and soap flakes and granules. A visit to the control laboratories and a short tour of the Crisco packaging plant ended the visit at Ivorydale. In the Drug Products plant they saw how liquid and cream shampoos are packaged.

A dinner meeting followed at the Maketewah Country Club.

ELMIRA CONFERENCE

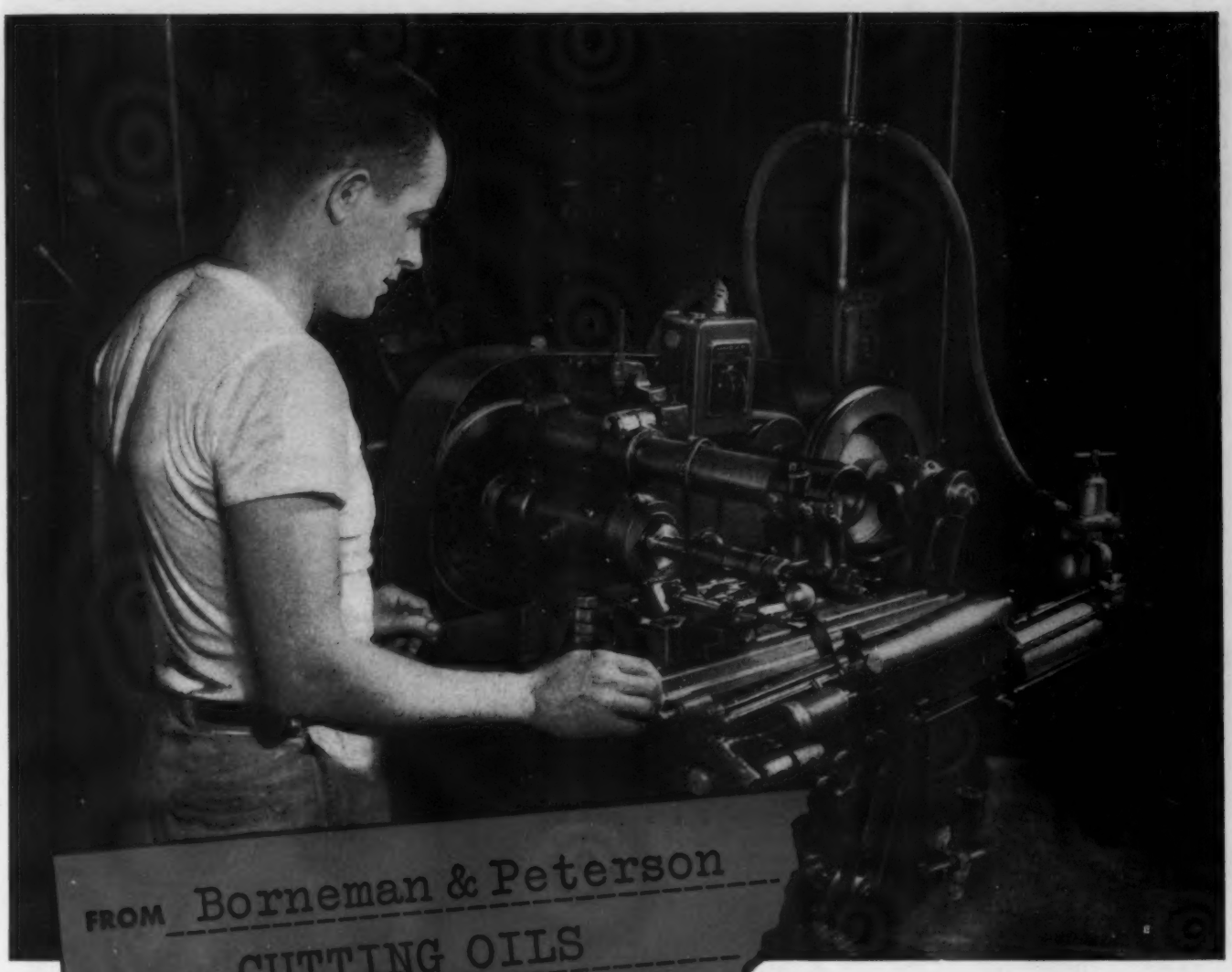
(*Continued from page 274*)

Gainsbrugh, Chief Economist of the National Industrial Conference Board, who discussed "The Economic Outlook". Industrial activity for 1952 is up from the previous year, but not to the extent of earlier optimistic predictions, and profit margins are narrowing. The maintenance of present manufacturing levels depends principally on the government's future policy in respect to defense contract scheduling.

District Vice President Brown also reported at the banquet, on the District Council meeting held in conjunction with the conference, announcing that J. M. Austin of Oneida, Ltd., member of the Syracuse and Central New York Association, had been elected as District Vice President for 1952-1953.

Also in connection with the conference was a meeting of the Educational Committee for the district. Participating in the discussion and planning were National Education Chairman George Aljian of San Francisco, Past President H. F. Jones of Wilmington, District Chairman J. M. Berry of Greensboro, N. C., and Co-Chairman A. L. McMillan of New York.

Special mention should also be given to the hospitality of the nearby Corning Glass Works, which held open house for plant visitation at the famed Corning Glass Center, providing an unusually interesting, informative and enjoyable opportunity to observe this unique operation and display.



ANY tiny production improvement looks big when it can be multiplied by acres of machines. But even without that—in an average size screw machine products shop like Borneman & Peterson's at Flint, Michigan—the improvement effected with Cities Service cutting oil registered impressively.

"We were getting fair results," write Borneman & Peterson, "before ever talking it over with a Cities Service Lubrication Engineer."

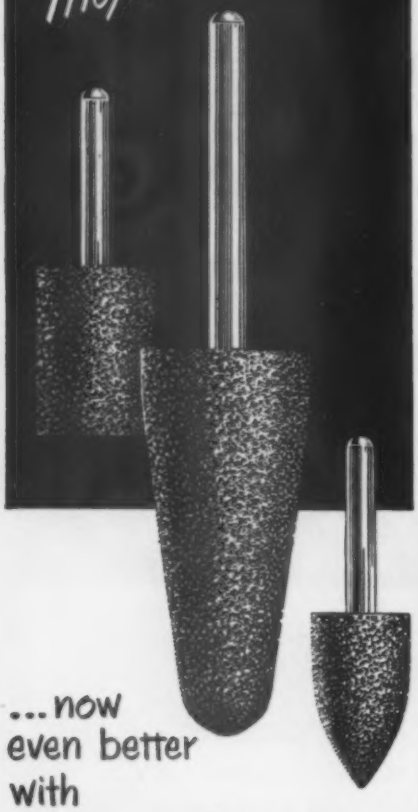
But they did talk it over, and then tried out his recommendation on a regular job of cutting ½" x 1" slots in tough tool steel. At once, the use of Cities Service Chillo cutting oil notably improved product quality.

So..."We then tried using Chillo 10 on our threading machines, and found that not only do we get a better thread, but we have increased chaser life approximately 25%."

From there on, still more uses have kept turning up in this shop for Cities Service cutting oil, simply because it distinctly pays off...as it always does when a Cities Service Lubrication Engineer offers pinpointed lubricating recommendations. He draws on the c-o-m-p-l-e-t-e Cities Service industrial line, and on deep, wide experience. You can draw on *him* by writing CITIES SERVICE OIL COMPANY, Dept. E32, Sixty Wall Tower, New York City 5.

CITIES SERVICE
QUALITY PETROLEUM PRODUCTS

Chicago
MOUNTED
Wheels
They're the Best



...now
even better
with
79E BOND
the new miracle
grinding wheel bond

Choose Chicago Mounted Wheels – bonded with 79E Bond – and you'll never buy any other! This tough new grinding wheel bond, exclusive with Chicago Wheel, has taken the industrial world virtually by storm, doing a better grinding, burring and finishing job faster. Greatest selection of sizes and shapes for every application. Best of all, deliveries are good . . . ready when you need them. Try 79E Bond Mounted Wheels.

WRITE today for full information and literature. It's free.

CHICAGO WHEEL
& Mfg. Co.
Dept. P • 1101 West Monroe Street
Chicago 7, Illinois
OFFICES IN PRINCIPAL INDUSTRIAL CENTERS

SALESMEN'S PROBLEMS WITH PA'S CENTRAL IOWA TOPIC

A forum type discussion on the problems that salesmen face in dealing with the purchasing agent was featured at the April meeting of the Central Iowa Purchasing Agents Association in Des Moines. Six members of the Sales Executives Club of Central Iowa comprised the panel.

Charles Carey, vice-president of the Harris Trust & Savings Bank, Chicago, Ill., was guest speaker at the March meeting. His subject was "Uses Industry Can Make of Its Banks."

* * *

MONTREAL ASSOCIATION IN TWO-DAY, TWO-CITY PLANT VISITS

The Purchasing Agents Association of Montreal held a two-day out-of-town plant visit program on April 25 and 26 in the Brockville and Kingston districts.

Traveling in a special train, the group first visited the Canada Foundries & Forgings Ltd., Orient Hosiery Company Ltd., and Phillips Electrical Works Ltd. plants, and John B. Stetson (Canada) Ltd., in Brockville. There was an association dinner meeting with invited guests from the firms visited. At the conclusion of the meeting, the party left by buses for Kingston.

Plants visited at Kingston were those of the Aluminum Company of Canada Ltd. (Fabricating Division) and Canadian Industries Ltd. (Nylon Division).

WOMEN Work Better WITH
HATTIE SNOW UNIFORMS



★ SLACK SUITS
★ COVERALLS
★ OVERALLS
★ JUMPERALLS
★ WORK DRESSES
★ CAPS

• Serviceable
• Durable
• Washable
• Colorfast
• Sanforized

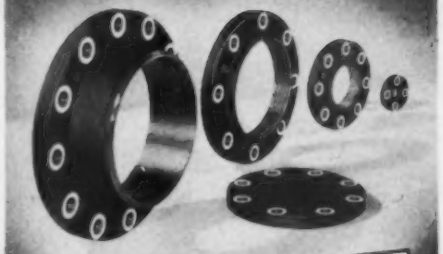
WRITE for complete information on styles and prices

RANDLES Manufacturing Co.
CAROLINE ST.
OGDENSBURG, N. Y.

when you need
COUPLINGS



when you need
FLANGES



call on
HARRISBURG

The character of the manufacturer shows in the product. Harrisburg manufactures a full line of seamless steel pipe couplings to A.P.I. and A.I.S.I. specifications . . . and drop-forged steel pipe flanges made to A.S.A. standards.





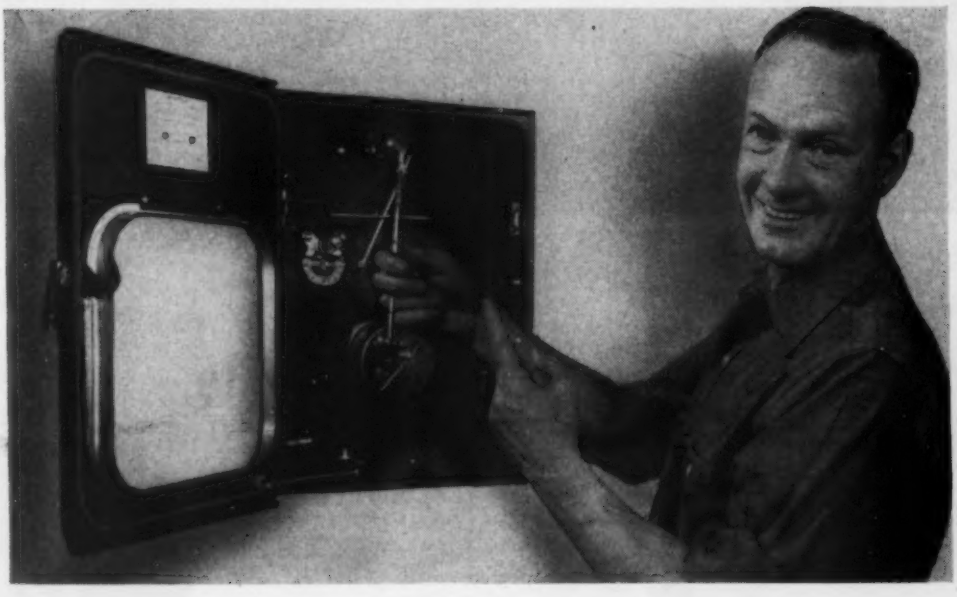
Copies of the Harrisburg Couplings and Harrisburg Flanges Catalogs will be mailed upon request.

HP52-3

99 Years in Pennsylvania's Capital
Harrisburg Steel
CORPORATION
HARRISBURG 19, PENNSYLVANIA



No replacement fits a Bristol Instrument so perfectly as a Bristol replacement*!

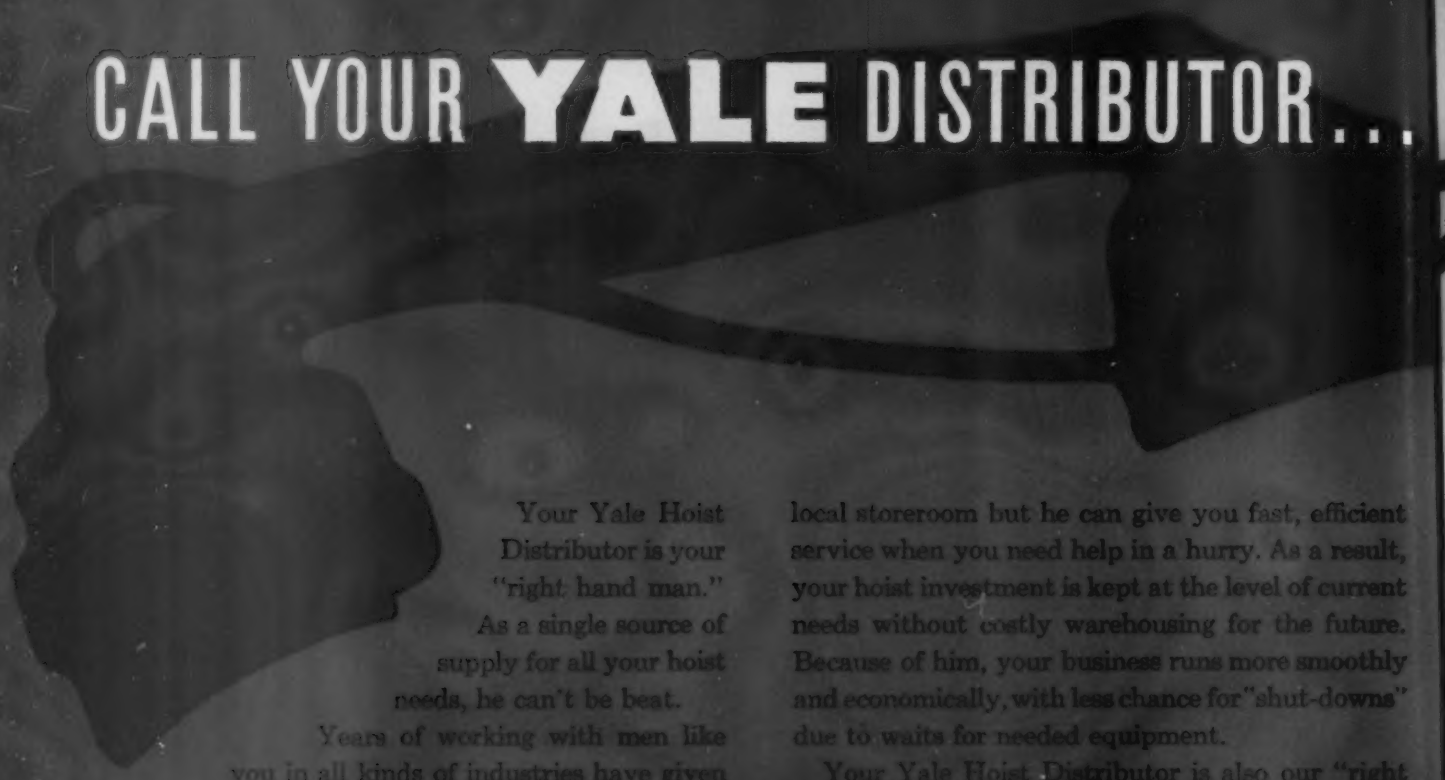


* Who is better equipped than the actual maker of the instrument to make component parts that fit it precisely? Don't risk the lack of precision—which even a slight inaccuracy or misalignment in a component may cause—when you can avoid it so easily by simply specifying Bristol replacements. Quick delivery.
THE BRISTOL COMPANY, WATERBURY 20, CONNECTICUT

BRISTOL *The dependable Guidepost of Industry*

AUTOMATIC CONTROLLING, RECORDING AND TELEMETERING INSTRUMENTS

CALL YOUR **YALE** DISTRIBUTOR...



Your Yale Hoist Distributor is your "right hand man." As a single source of supply for all your hoist needs, he can't be beat.

Years of working with men like you in all kinds of industries have given him a wealth of hoist application experience to draw on in solving *your* hoisting problems. By stocking the hoists and parts you buy periodically, your Yale Distributor not only serves as a local storeroom but he can give you fast, efficient service when you need help in a hurry. As a result, your hoist investment is kept at the level of current needs without costly warehousing for the future. Because of him, your business runs more smoothly and economically, with less chance for "shut-downs" due to waits for needed equipment.

Your Yale Hoist Distributor is also our "right hand man." He knows what's new in hoists. Take advantage of his broad experience, complete facilities and reliable service to increase your production and cut your costs.

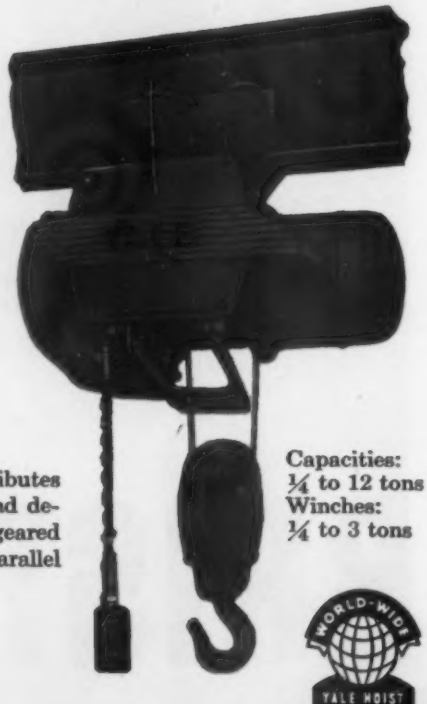
YALE



Air-Cooled!

YALE CABLE KING
WIRE ROPE ELECTRIC HOIST

A rugged and powerful electric hoist, designed with all the latest engineering advances and constructed with precision in every detail. Exclusive *air cooling* and *positive load brake lubrication* eliminate excess heat—assure top performance and long life in heavy-duty service. As a result, the Yale Cable King contributes greatly to increased production and decreased costs. Lug, hook, plain, geared and motor-driven trolley types, parallel and right angle suspension.



Capacities:
¼ to 12 tons
Winches:
¼ to 3 tons

WORLD-WIDE
YALE HOIST
SALES and SERVICE

THE YALE & TOWNE MANUFACTURING COMPANY

for fast, efficient hoist service

Quick-lifting!

YALE

LOAD KING WIRE ROPE or CHAIN TYPE ELECTRIC HOIST

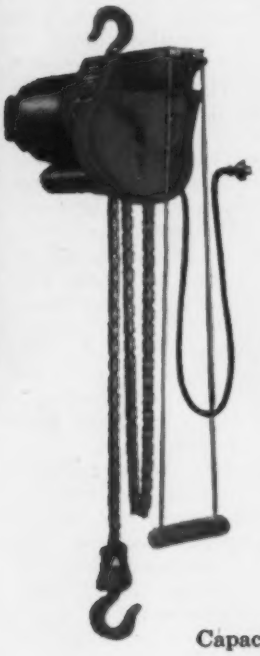


The ideal light-duty electric hoist for many lifting jobs. Small dimensionally, but fast and strong in lifting action. Push button control leaves one hand free to guide the load — makes "inching" easy, accurate. Wire rope model has flanged and grooved drum — cable cannot pile up. Chain Type provides longer lift. Both models save time, effort, boost production.

Capacities: Wire Rope Type —¼ to 1 ton. Chain Type—¼ to ¾ ton.



Compact...Powerful!



YALE

MIDGET KING CHAIN ELECTRIC HOIST

An all-purpose electric hoist with roller chain. Compact, light in weight, uses little electricity. Speeds maintenance, keeps machines busy and increases the productivity of workers. One-hand bar-grip control starts fast, effortless, safe hoisting action. Among its many other outstanding advantages are steel safety hook, self-actuating load brake, safety limit stops, life-time gears, precision ball bearings, ample motor capacity. Hook and trolley types.

Capacities: ⅛ to 2 tons

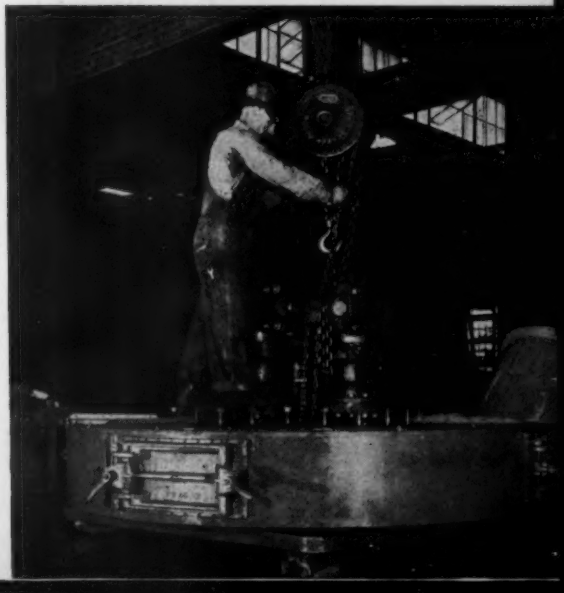


Fast...Efficient!



YALE HAND CHAIN HOISTS

Yale Hand Chain Hoists—Spur-Geared, Screw-Geared, Differential—provide safe, easy lifting that saves time and effort, cuts production costs. All three types have long-life durability that takes hard service in stride. Feature for feature, Yale Hand Hoists meet every quality and performance requirement of industry—and provide modifications necessary for special applications.



YALE

Capacities: ¼ to 40 tons, depending on type.

DW-4

ROOSEVELT BOULEVARD · PHILADELPHIA 15, PA.

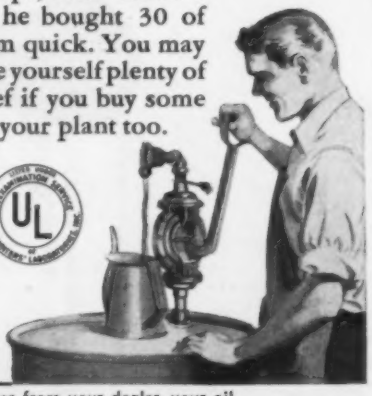


The one precaution Tom overlooked . . .

Tom McBride was the best safety engineer our company ever had. He had an uncanny sense of detecting danger, and seemed to do the things necessary to prevent accidents before they occurred. We won three safety citations under Tom's direction. Our plant was clean as a pin.

But then the roof fell in. A worker in the machine shop slipped in a pool of spilled oil, fell and broke his arm — a nasty break at the elbow. A day later a boy in the press room had a similar accident, except he sprained his back. It looks like it may be serious. But the payoff was the fire in the tool crib. Someone dropped a lighted cigarette in some oil drippings, and I'm ashamed to tell you what happened. Among other results, it damaged some valuable dies that will take months to replace, and almost lost us an important customer because we couldn't make delivery on time.

Careful as Tom is, he didn't realize that there are better ways to transfer oil than by drawing it through a spigot. I told him about Tokheim Hand Pumps, and believe me he bought 30 of them quick. You may save yourself plenty of grief if you buy some for your plant too.



QUALITY TOKHEIM DOUBLE-ACTION HAND PUMPS

Order from your dealer, your oil company, or your Tokheim representative. Write factory for literature.

General Products Division

TOKHEIM OIL TANK AND PUMP COMPANY

Wabash Avenue, Fort Wayne 1, Indiana

Factory Branch: 1678 Howard Street, San Francisco 3, California

EARLY ANNOUNCEMENTS GIVE PROMISE OF RICH FARE ON CONVENTION PROGRAM

First announcement on the program for the 1952 National Association of Purchasing Agents Convention and Inform-A-Show, to be held in Atlantic City, N.J., on May 25, 26, 27, 28, indicate an outstanding, information-packed session featuring topflight leaders in all important fields of business and industry.

Among the highlights scheduled are these addresses: "Keeping Pace With Purchasing Progress", Chester F. Ogden, president of N.A.P.A., manager of purchases for The Detroit Edison Company, Detroit, Mich.; "Purchasing Policies and the Market and Price Outlook", Robert C. Swanton, chairman, N.A.P.A. Business Survey Committee, director of purchases, Winchester Repeating Arms Company, Division of Olin Industries, Inc., New Haven, Conn.; "Our Situation Economically", Dr. Edwin G. Nourse, former chairman, President's Council of Economic Advisers, Washington, D.C.; "Aluminum: How Much and When?" I. W. Wilson, president, Aluminum Company of America, Pittsburgh, Pa.; "Copper: How Much and When?" Whipple Jacobs, president, Phelps Dodge Copper Products Corporation, New York, N.Y.; "Steel: How Much and When?", Hiland G. Batcheller, chairman of the board, Allegheny-Ludlum Steel Corporation, Pittsburgh, Pa.; "Price Discrimination: The Law—The Practical Problems Confronting Buyers Through Its Interpretation", H. Thomas Austern, Covington and Burling, Washington, D.C.; "International Materials: Market and Price Prospects"; "Controls — Inflation: Where Are We Headed?", a panel discussion by prominent economists and representatives of government and industry. Forum topics will include: Containers; Fuel — Coal and Oil; Nonferrous Metals; Paper; Standardization; Women in Purchasing.

Other standard features that are expected to top previous records in quality are the group meetings, educational program, Early Birds dinner, ladies luncheon and special events, the annual banquet, and of course, the Inform-A-Show.

* * *

NEW ORLEANS ASSN. SEES FILM ON DRUM LABELING

A regular monthly dinner meeting of the Purchasing Agents Association of New Orleans was held at the St. Charles Hotel on Monday, April 14. Feature of the program was the technicolor sound film, "Ambassadors at Large", taken in the Rheem Manufacturing Plant. It shows how trade marks are put on steel drums for the first time through a new process. Robert Elsasser, economist, gave a short talk on current conditions.

New members in the association include: N. J. Landry, Gulf Refining Co., and John J. Lipse, Metric Supply Co.

LADISH

Controlled Quality

PIPE FITTINGS

reduce piping assembly time

Makeup goes smoother... with less chance for delay... on those piping systems where Ladish fittings are installed. Ladish Controlled Quality makes the difference. By exacting controls over materials and manufacturing processes... Controlled Quality assures uniform weldability through metallurgical integrity, fast assembly through dimensional accuracy and provides a real assurance of ultimate operating economy and complete dependability... reasons why it pays to specify LADISH.

TO MARK PROGRESS



THE COMPLETE *Controlled Quality* FITTINGS LINE
PRODUCED UNDER ONE ROOF...ONE RESPONSIBILITY

LADISH CO.

CUDAHY, WISCONSIN
MILWAUKEE SUBURB

District Offices: New York • Buffalo • Pittsburgh • Philadelphia • Cleveland • Chicago • St. Paul
St. Louis • Atlanta • Houston • Tulsa • Los Angeles • Havana • Toronto • Mexico City



it's paper

. . . BUT IT MUST BE WASHED OR DRY CLEANED



To be sure your clothing gets back to you, dry cleaners and laundries usually clip on a little tag made of special Riegel paper. This paper retains its high wet strength when tossed around in cleaning fluid or hot soap suds . . . the wire clip won't tear out, nor will the customer's identification number become blurred.

It's another interesting example of Riegel's ability to make paper for almost any need. We now produce more than 600 grades, and no matter what your requirements may be . . . we should be able to meet them quickly, accurately and economically. If we can't, we will be glad to tell you who can. Write us now for more information.

RIEGEL PAPER CORPORATION

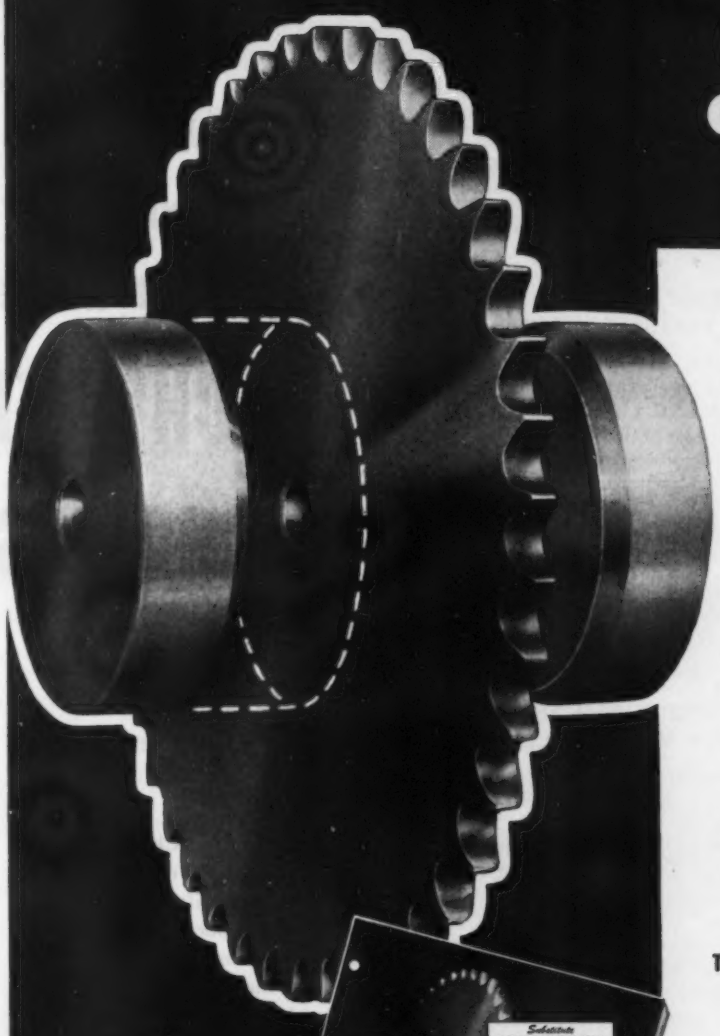
P. O. Box 170 · Grand Central Station · New York 17, N. Y.

Riegel

· TAILOR-MADE PAPERS FOR INDUSTRIAL USE ·

NOW "Special" Sprockets

Converted into OFF-THE-SHELF ITEMS

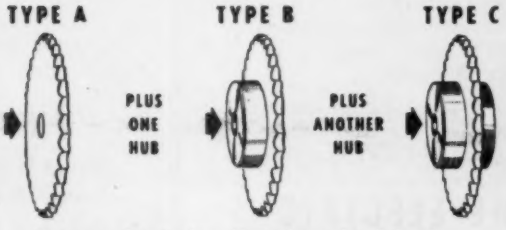




Simple as A-B-C, Cullman Semi-Stock converts made-to-order sprockets, in small quantities, into "off-the-shelf" stock items—cost is lower and delivery time shortened.

By welding one or two hubs to a Cullman Semi-Stock type A sprocket, it can be converted into a type B or type C sprocket. Finish machining and bore sizing complete the sprocket to specifications. Or—plate sprockets may be purchased separately.

Various pitches and number of teeth may be combined with different hubs, in a multitude of combinations, to supply sprockets with bore sizes according to each individual need.



Plates and hubs for all Cullman Semi-Stock sprocket combinations are carried in stock. This is but another step in Cullman's consistent effort to offer a complete power transmission service to its many customers.

Send Today

for a Cullman Semi-Stock catalog or contact your local Cullman distributor.

CULLMAN

power transmission

SPROCKETS and ROLLER CHAIN

CULLMAN WHEEL COMPANY · 1352P WEST ALTGELD ST., CHICAGO 14, ILLINOIS

for
custom-engineered
POWER



look to... EP

Since 1909, the job of The Electric Products Company has been to create and develop special electrical rotating equipment . . . motors and generators to do existing jobs better or to reach into new fields to do jobs that couldn't be done before. The natural "by-product" of our more than 40 years of specialization is that you get equipment designed and built to the exact requirements of your application . . . equipment that has greater dependability, longer life and that requires less maintenance.

Send in the coupon below for detailed information about our Custom-Engineered synchronous motors and generators . . . d-c motors and generators . . . induction motors . . . battery chargers . . . frequency changers.

A nation-wide sales engineering and service organization stands ready to meet all User requirements.

THE ELECTRIC
PRODUCTS COMPANY



1716 CLARKSTONE ROAD
CLEVELAND 12, OHIO

Attach coupon to your letterhead for your copy of Bulletin 2-200.

NAME_____
TITLE_____
COMPANY_____
STREET_____
CITY_____ ZONE____ STATE_____
X-74

EDITOR SPEAKS AT ST. LOUIS ASSOCIATION MEETING

George F. Sullivan, editor of Iron Age, was the principal speaker at a meeting of the Purchasing Agents Association of St. Louis, held in the Sheraton Hotel on March 25.

Speaking to about 300 members of the group, Mr. Sullivan said that a steel settlement in line with the Wage Stabilization Board's recommendations would set off a chain reaction that would wreck efforts at wage-price stabilization.

He said that steel consumers cannot be expected to absorb "higher steel costs and terrific new wage packages." He added that they in turn will have to seek higher prices if they hope to keep their heads above water.

TULSA ASSOCIATION HOLDS "DOUBLE FEATURE" MEETING

The Purchasing Agents Association of Tulsa held a "double feature" meeting in the new Chamber of Commerce building on April 8. First feature was the joint educational program with Tulsa University students and Sam Brown, instructor in the purchasing class, and a panel from the Association.

Second feature was the showing of a technicolor motion picture, "Walls Without Welds", produced by the National Tube Division, United States Steel Corp.

"DU PONT STORY" FILM SHOWN AT SAGINAW VALLEY MEETING

A regular meeting of the Saginaw Valley Purchasing Agents Association was held recently in the Chanticleer, Saginaw, Mich. A technicolor film entitled "Du Pont Story" was the feature of the program presented by Bob Byrne, program chairman.

Among the new members received are: John L. Burnell, Baker Perkins, Inc.; H. C. Schwerin, Dow Chemical Company; Curtis Wagner, Bancroft Hotel, Saginaw.

ALABAMA ASSN. HOST TO INDUSTRIAL DISTRIBUTORS

An Industrial Distributors Night meeting was held on March 27 by the Purchasing Agents Association of Alabama. The affair took place at the Thomas Jefferson Hotel, Birmingham, and featured the appearance of top executives of industrial distributing organizations of the area.

Among those participating in the industrial distribution panel were: Charles A. Long, president of Long-Lewis Hardware Co.; Wayne B. Nelson, vice-president of Young and Vann Supply Co.; Cecil J. Mathews, president of Mathews Electric Supply Co.; L. A. Womeldorf, manager of Graybar Electric Co.; James F. Shackleford, president of Wimberly and Thomas Hardware Co.; and W. W. French, Jr., president of Moore-Handley Hardware Company.

EASIER,
LESS COSTLY
Material Handling



with
powerful,
Spur-Geared
CHESTER
HOISTS

Chester Spur-Geared Chain Hoists are expertly designed and ruggedly built . . . to give you rapid lifting and lowering with the least effort and lowest cost. Made in sizes from ¼ to 25 tons—and built into a number of special purpose hoists such as Extended Hand Wheel and Low Headroom. Timken Bearings reduce friction on working parts, insure smooth operation and long life. Chester Differential Hoists are also available—in ¼, ½, 1 and 1½ ton sizes. Ask your distributor, or write us for complete catalog, and tell us your requirements.

FAST SERVICE ON "SPECIALS"

With a modern, compact, completely integrated plant, we can give fast service on special types such as Low Headroom Trolley Hoists. Let your distributor quote on your specifications, or write us direct.

CHESTER HOIST DIVISION
The National Screw & Mfg. Company
Lisbon, Ohio

LOW RESISTANCE to FLOW



Minimum resistance to flow . . . that is the feature of Midwest Welding Fittings we call to your attention with this photographic fantasy. Other superior qualities that result from our unique manufacturing methods are dimensional accuracy and uniformity . . . true circular cross-section, controlled wall thickness, and accurate radius, included arc and tangents. The consequent benefits are a saving in welding time and a better piping system.

4581



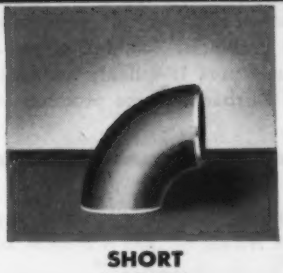
MIDWEST "LONG TANGENT"

Same radius as ASA but tangent equal to 25% of nominal pipe size on each end. Saves pipe, layout and welding time. Costs no more than ASA. Sizes to 24″.



ASA STANDARD

Dimensions conform to applicable size range of American Standard for Butt-Welding Fittings, ASA B16.9. Tolerances much less than allowable. Sizes to 26″.



SHORT RADIUS

Recommended where space limitations do not permit use of "Long Tangent" or ASA Elbows. Sizes to 30″.



MIDWEST REDUCING

Takes the place of a straight size elbow and a reducer. Eliminates one weld, reduces pressure drop, easier to insulate. Sizes to 12″, reductions to half size.

MIDWEST PIPING & SUPPLY CO., Inc.

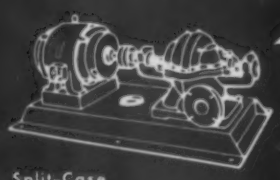
Main Office: 1450 South Second Street, St. Louis 4, Mo.
Plants: St. Louis, Passaic, Los Angeles and Boston
Sales Offices: New York 7—50 Church St. • Chicago 3—79 West Monroe St. •
Los Angeles 33—520 Anderson St. • Houston 2—1213 Capitol Ave.
Tulsa 3—224 Wright Bldg. • Boston 27—426 First St.

STOCKING DISTRIBUTORS IN PRINCIPAL CITIES

FAIRBANKS-

INDUSTRIAL P

BUYERS G



Split-Case Centrifugal Pumps

WHAT Common source for a long line of uncommonly good standard and special scales, pumps and electrical equipment—that's Fairbanks-Morse. It is a line that offers a double advantage—*depth*, for a broader range of choice; *quality*, attested by the thorough satisfaction of users in every branch of industry. Use this partial listing as a handy check against your particular needs.



Deep Well Turbine Pumps

ELECTRICAL EQUIPMENT

Alternators
AC generators, revolving armature, type TG.
AC generators, revolving field, types TG & TGZK.
AC generators, revolving field, slow speed engine, type TGZO.

Axial Air Gap Motors
Polyphase open
Polyphase enclosed
Single phase

Direct Current Generators
Standard types.
Open ball bearing type DG high speed.
Open sleeve bearing type DGZB high speed, ½ to 30 KW.
Open engine type DGZ0, low speed, ½ to 300 KW.
Partially enclosed marine type DGZM, ½ to 300 KW.

Direct Current Motors
Standard types

Motor Generator Sets
Induction and synchronous, single & polyphase
Vertical induction polyphase

Polyphase Induction Motors
Standard open type, squirrel cage.
Totally enclosed, non-ventilated, squirrel cage.
Totally enclosed, fan cooled, squirrel cage.
Explosion proof, fan cooled, squirrel cage.
Special duty, squirrel cage.
Multi-speed, squirrel cage.
Constant torque, variable torque and constant hp. types, 2-speed, 3-speed and 4-speed single winding and double winding.
Also offered in a wide range of mechanical modifications, such as splash proof, totally enclosed fan cooled, vertical, etc.
Gear Motors
All-motor types and type "D" Motorgears, with Axial Air Gap motors.
Textile Motors
Wound Rotor, Slip-Ring Motors.
Vertical Motors—Solid Shaft.
Vertical Motors—Hollow Shaft.

Single Phase Motors
Repulsion start, induction run motors.
Vertical hollow shaft motor.
Vertical solid shaft motor.

Synchronous Motors
High speed Types T and TZB.
Engine-type low speed Type TZO.

PUMPS

Base-mounted centrifugal pumps.
Builtogether centrifugal pumps.
Centrifugal fire pumps.
8-Cover side-pot duplex power pumps.



Bladeless Impeller Pumps

WHERE You'll save time and foot-work by calling—or visiting—your nearest Fairbanks-Morse sales center listed here.

One call may answer many of your immediate and future purchasing problems. Too, full engineering and application assistance is quickly available on any and all of the Fairbanks-Morse products which might interest you.



Rotary Pumps

ATLANTA 3, GEORGIA
760 Lee St., S. W.
AMhurst 7701

BALTIMORE 18, MD.
659 E. 25th St.
BEImont 5258

BIRMINGHAM 1, ALA.
626 N. Ninth St. Zone 4
3-6546

BOSTON 10, MASS.
178 Atlantic Avenue
LAfayette 3-3600

BUFFALO 3, N. Y.
33 Franklin St.
LIncoln 4210

CHARLOTTE 2, N. C.
Liberty Life Bldg.
Room 605
6-2893

CHICAGO 5, ILLINOIS
1550 S. State St.
HArrison 7-7100

CINCINNATI 2, OHIO
49 Central Avenue
MAin 3010

CLEVELAND 14, OHIO
3000 W. 117th St.
CLearwater 1-3300

COLUMBUS 8, OHIO
1034 Geodale Blvd.
WAlnut 8581

DALLAS 2, TEXAS
1713 N. Market Street
CEntral 4347

DENVER 2, COLO.
1500 17th Street
TAber 6241

DES MOINES 17, IOWA
2017 Dean Avenue
6-1189

DETROIT 13, MICHIGAN
11110 East Warren Ave.
VAlley 1-7100

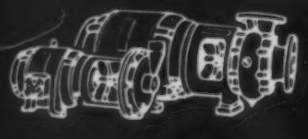
DULUTH 2, MINN.
Board of Trade Bldg.
2-7538

HOUSTON 13, TEXAS
5521 Navigation Blvd.
WAyside 2159—(LD 50

FAIRBANKS-MORSE,



Totally Enclosed Fan-Cooled Motors



Builtogether Pumps

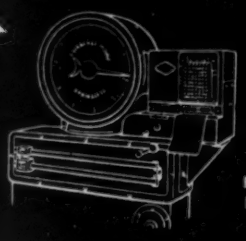
Axial Air Gap Motors



S-MORSE

L PRODUCTS

S GUIDE



Printomatic Dial Scales

PUMPS (Cont.)

Deep well turbine pumps.
Duplex steam pumps.
Frame constructed rotary pumps.
Horizontal angle flow pumps.
Paper stock pumps.
Rotary pumps.
Sewage and trash pumps —horizontal and vertical, including new bladeless "non-clog" impeller types.
Split-case centrifugal pumps.
Two-stage Builtogether pumps.
Two-stage centrifugal pumps.
Vertical angle flow pumps.
Vertical propeller pumps.

SCALES

Abattoir Scales
Airplane Scales
Automatic Charging Scales
Bakers' Scales
Barrel Scales
Batching Scales
Belt Conveyor Scales
Bench Dial Scales
Bench Scales

Cane Hoist Scales
Canners' Scales
Coal Tipple Scales
Concrete Aggregate Scales
Confectioners' Scales
Conveyor Weigher Scales
Counter Scales
Counting Scales
Crane Dial Scales
Cream Receiving Scales

Dairy Scales
Dump Scales
Dial Scales—All Types

Evans Balance Scales
Electric Control Weighing Scales

Folding Platform Scales

Furnace Charging Car Scales

Grain Testers

Hanging Dial Scales
Hopper Scales
Household Scales

Industrial Scales

Livestock Scales
Laundry Scales
Locomotive Wheel Load Scales

Mail Scales
Meat Beams
Mine Car Scales
Monorail Dial Scales
Motor Truck Scales
Motor Truck Wheel Load Scales
Motor Truck Axle Load Scales

Overhead Suspension Platform Scales
Overhead Track Dial Scales

Platform Counter Scales
Portable Dial Scales
Portable Platform Scales
Precision Indicators
Predetermined Weighing Scales
Printomatic Weighers
Printomatic Crane Scales
Printomatic Railroad Track Scales

Railroad Track Scales

Suspension Crane Scales
Suspension Platform Portable Scales

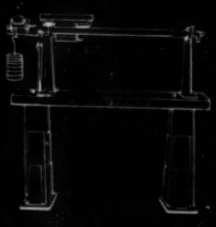
Tank Scales
Test Weights

Unit Counting Scales

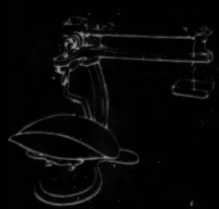
Wagon Scales
Water Meter Beams
Warehouse Scales
Weigh-Bagger Scales
Weigh-Can Scales
Wheelbarrow Scales



Bench Scales



Full-Capacity Beam Scales



Counting Scales

INDIANAPOLIS 2, IND.
1499 N. Harding St.
FRanklin 3684
ATlantic 3092

JACKSONVILLE 6, FLA.
930 East Adams St.
5-6473

KANSAS CITY 7, MO.
1300 Liberty Street
Victor 6474

LOS ANGELES 11, CALIF.
4535 S. Soto Street
JEfferson 8151

LOUISVILLE 8, KY.
2008 So. Brook St.
CAlhoun 1469

MEMPHIS 7, TENN.
676 Jefferson Ave.
5-1614

MILWAUKEE 3, WIS.
404 N. Plankinton
DAly 8-0180

MINNEAPOLIS 15, MINN.
417 S. Fourth Street
MAin 4353

NEW ORLEANS 13, LA.
1000 St. Charles Ave.
RAymond 3115

NEW YORK 4, N. Y.
80 Broad St.
HAnover 2-7470

OMAHA 8, NEBRASKA
902 Harney St.
ATlantic 3122

PHILADELPHIA 8, PA.
401 N. Broad St.
WA 2-4100

PITTSBURGH 24, PA.
4301 Main Street
SChenley 1-3123

PORTLAND 14, OREGON
105 S. E. Taylor St.
EAst 0131

PROVIDENCE 3, R. I.
187 Pine Street
GAspee 1-1531

ST. LOUIS 2, MO.
217 South Eighth St.
CHestnut 7483

ST. PAUL 1, MINN.
220-26 E. Fifth Street
GArfield 4335

SALT LAKE CITY 1, UTAH
153 W. Second South St.
3-2108 & 3-5139

SAN FRANCISCO 7, CALIF.
630 Third Street
EXbrook 2-5855

SEATTLE 99, WASH.
Salmon Bay Terminal
ALden 6600

STUTTGART, ARK.
403 South Main St.
185

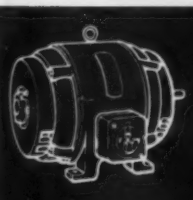
TULSA 3, OKLA.
1335 Hunt Bldg.
3-8231

WASHINGTON 5, D. C.
1000 Vermont Ave., N. W.
District 6694

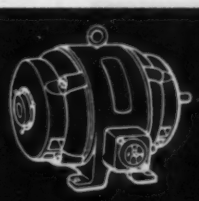
FAIRBANKS-MORSE de MEXICO S. A.
Balderas 146, Mexico 1, D. F. Mexico
10 06 74 y 10 09 58

a name worth remembering

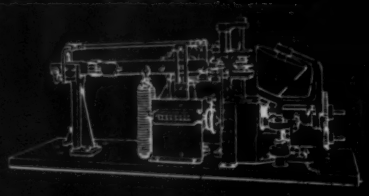
Export Division:
NEW YORK 4, N. Y. 80 Broad Street—HAnover 2-7470



General Purpose Motors

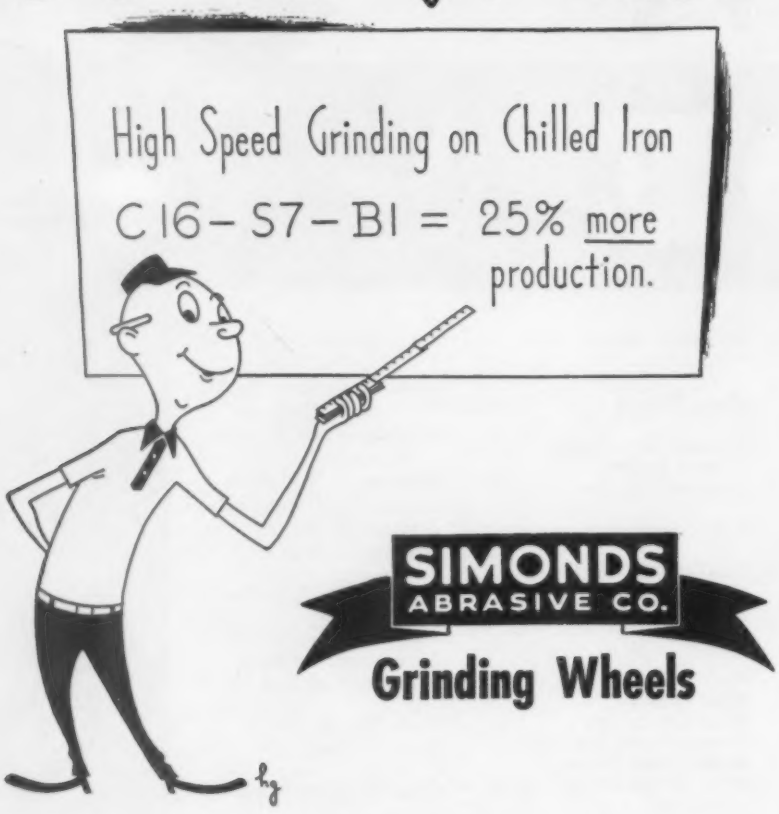


High Torque Compressor Motors



Belt Conveyor Scales

Here's how the Grinding Department figures it...





That 'formula' sure paid off in one grinding department. What does it mean? Simply this: a Simonds Abrasive Company grinding wheel—specification C16-S7-B1—boosted production 25%. Why? Because this wheel is accurately specified for the job it had to do. This is true of all Simonds wheel specifications. They're listed in our free data book, along with details on our complete line of grinding wheels, mounted wheels and points, segments and abrasive grain—plus information on how you can get Simonds wheels specially made for out-of-the ordinary jobs. Write for it. Also name of your nearby distributor.

SIMONDS ABRASIVE CO., PHILADELPHIA 37, PA. BRANCH WAREHOUSES: CHICAGO, DETROIT, BOSTON
DISTRIBUTORS IN PRINCIPAL CITIES

Division of Simonds Saw and Steel Co., Fitchburg, Mass. Other Simonds Companies: Simonds Steel Mills, Lockport, N. Y., Simonds Canada Saw Co., Ltd., Montreal, Que. and Simonds Canada Abrasive Co., Ltd., Arvida, Que.

"ALUMINUM COMES TO B. C." TOPIC AT BRITISH COLUMBIA

"Aluminum Comes to B.C." was the subject of a talk given at the March meeting of the Purchasing Agents Association of British Columbia. Guest speaker was G. G. Vincent, public relations officer of the Aluminum Company of Canada.

Mr. Vincent explained that as early as 1930, the Provincial Government of British Columbia had approached his company about development of an aluminum industry there. However, it was not until 1947 that the company got really interested. A smelter will be in operation early in 1954, he said, and will at the outset produce half million metric tons of aluminum yearly.

The booming oil industry in the west was depicted by three motion pictures shown to members of the association's educational meeting on March 15. The first film was "Search Unending", shown through the courtesy of Imperial Oil. It dealt mostly with the exploratory work of field geologists in their quest for new oil fields. The second, "Birth of an Oil Field", also produced by Imperial, showed the drilling of an oil well from the time the first drill was set in motion until the oil flowed to the surface. The last film, "Artery for Oil", showed the start to finish of the pipe line from Edmonton, Alberta, to the head of the lakes.

Vancouver Island News

"The Romance of Wire" was the title of a talk by E. W. Johnson, general manager, Canada Wire & Cable Company, at the March meeting. The speaker dealt with the manufacture of electrical wire, beginning with copper ingots through to the finished article. Samples of the product in various stages of manufacture were shown to the members.

A film showing the construction of the First Narrows suspension bridge which links Vancouver proper with West Vancouver, was also presented.

* * *

MAGAZINE PUBLISHER TALKS AT NEW YORK ASSN. MEETING

A regular meeting of the Purchasing Agents Association of New York was held on April 15, at the Builders' Exchange Club. Principal speaker was Eldridge Haynes, publisher of Modern Industry. Mr. Haynes discussed the foreign commodity market and their impact on our economy as CMP materials ease, under the title "The International Crisis and the Purchasing Agent."

"Cost of Operating a Purchasing Department" was discussed at the afternoon forum session. Guest speaker was Dr. John G. Glover, professor of management at New York University. He discussed factors which should be considered, and some new ideas, for measuring and appraising costs of purchasing. F. Albert Hayes, vice-president for purchasing, Bigelow-Sanford Carpet Co., supplemented the speaker during the question period.

It's easier than you think...

to equip with ball bearings



FAFNIR economy packages



Typical Fafnir "packaged" ball-bearing units

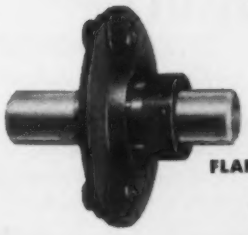
PILLOW BLOCKS
Light Series



PILLOW BLOCKS
Medium and Heavy Series



RUBBER UNITS
including Flange and Cylindrical Types



FLANGETTE
with pressed Steel Flanges and Mechani-Seals

Would you like to add the advantages of ball bearings to your power transmission equipment? Maybe you've passed them up feeling that a changeover would involve extra work, too much down time, extra parts . . . machining, special housings, lubricating systems. With Fafnir Economy Packages, it's easier than you think to equip with ball bearings. These units are complete with housings, seals and shields . . . ready to slip into place on an amazing variety of machines and equipment. Fafnir Economy Packages feature the famous Fafnir Wide Inner Ring Bearing with Self-Locking Collar . . . easiest of all to install . . . no shouldering, threading, lock nuts or adapter devices. Whatever industry you're in, a few minutes spent with an Authorized Fafnir Distributor may bring forth an Economy Package that assures ball bearing smoothness, power-saving and maintenance-saving for your power transmission equipment. The Fafnir Bearing Company, New Britain, Conn.

FAFNIR
BALL BEARINGS
MOST COMPLETE LINE IN AMERICA

custom built
Quality
production line
Volume

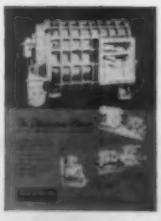


Standardaire
AXIAL FLOW POSITIVE PRESSURE
Blowers
SET NEW STANDARDS OF
AIR HANDLING EFFICIENCY

★ Principal components of these high-efficiency Blowers are manufactured on Read Standard's production lines with precision methods. This production engineering achievement enables us to offer industry a complete line of Blowers with the efficiency and design features of a custom built job, the availability of a quantity production unit, at a competitive price. ★

MANY APPLICATIONS . . .
FROM AIR CONDITIONING
TO WATER WORKS PLANTS

Request Publication No. 88. Standardaire Blowers handle air or gas under a wide range of pressure or vacuum conditions, pulley or direct drive.



READ STANDARD
CORPORATION

370 LEXINGTON AVENUE • NEW YORK 17

★ *Makers of Readco Bakery Equipment . . . Readco Material Handling, Chemical Processing, and Mixing Equipment . . . Standard Stokers* ★

THIRD ANNUAL PURCHASING CONFERENCE AT U. C. L. A.

The third annual conference on Purchasing presented by the School of Business Administration and the Department of Conferences and Special Activities, University Extension, University of California, is scheduled for May 2 and 3 on the Los Angeles campus of the university.

The conference is presented in cooperation with the Purchasing Agents Association of Los Angeles; the California State County, and Municipal Purchasing Agents Association; the National Institute of Governmental Purchasing; the National Association of Educational Buyers; the Federal Procurement Officers Association; the Southern California chapter of the Quartermaster Association; the San Diego-Imperial section of the California Association of Public School Business Officials.

Bruce D. Henderson, general purchasing agent for Westinghouse Electric Corporation in Pittsburgh, and Chester F. Ogden, president of the National Association of Purchasing Agents, will be keynote speakers at opening sessions of the conference.

A feature of the conference, particularly in view of difficulties in purchasing metals, will be a panel session on May 3 on materials control. William T. Reynolds, director of purchases and stores, Los Angeles Transit Lines will be moderator. Panel members will be: S. S.

(*Please turn to page* 300)

TOOLS WITH TRADITION SINCE 1869



"C" CLAMPS

BETTER BUY BILLINGS®

VITALLOY® WRENCHES & SHOP TOOLS

THE BILLINGS & SPENCER CO.
HARTFORD 1, CONN.

SEE THE BILLINGS DISTRIBUTOR

Noted-
for
✓ PRECISION DIMENSIONS
✓ ACCURATE SHAPES
✓ DEPENDABLE FINISH

WYCKOFF
COLD FINISHED STEEL
CARBON AND ALLOY



WYCKOFF
STEEL COMPANY
FIRST NATIONAL BANK BUILDING
PITTSBURGH 30, PA.
3200 S. KEDZIE AVENUE
CHICAGO 23, ILLINOIS
Works: Ambridge, Pa. • Chicago, Ill.
Newark, N. J. • Putnam, Conn.



THIS TINY PLASTICS INSULATOR WITHSTANDS A 3,541-lb. PULL!

In this dramatic demonstration, an automobile weighing 3541 pounds was suspended from a single plastics insulator less than ⅜" in diameter. This high-strength part, specially developed by Richardson engineers, took the full load (38,000 psi) without distortion or failure.



MADE FROM A SPECIAL INSUROK® MOLDED LAMINATE DEVELOPED IN RICHARDSON LABORATORIES FOR *Reliable* ELECTRIC COMPANY

For their "Straightline" powerline splice, Reliable Electric Company, Chicago, needed an insulator with incredible strength—the ability to withstand tensile loads of 2,000 pounds and more. Many different insulating materials were tried, but none stood up to this critical strength requirement.

Richardson engineers solved the problem by developing for Reliable a special INSUROK molded laminate, and then molding the special shape to close tolerances. This rugged material has more than twice the strength required. Furthermore, it provides high dielectric strength, low moisture absorption, and good arc resistance—other important requirements.

In hundreds of such applications, Richardson's "Specialized Plastics Services" are solving difficult problems for industry. Write for full information.

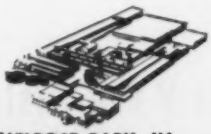
CONSULT RICHARDSON ON YOUR *SPECIAL* PLASTICS JOBS

This Reliable Electric Company application is typical of hundreds in which Richardson engineers have solved difficult plastics problems for industry. The Richardson Company's unique 4-point plastics service — Materials Development, Engineering, Molding, and Laminating—are available for your use.

The RICHARDSON COMPANY

FOUNDED 1858—LOCKLAND, OHIO

2791 Lake Street, Melrose Park, Illinois (Chicago District)



MELROSE PARK, ILL.



INDIANAPOLIS, IND.



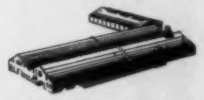
NEW BRUNSWICK, N. J.



NEWNAN, GA.

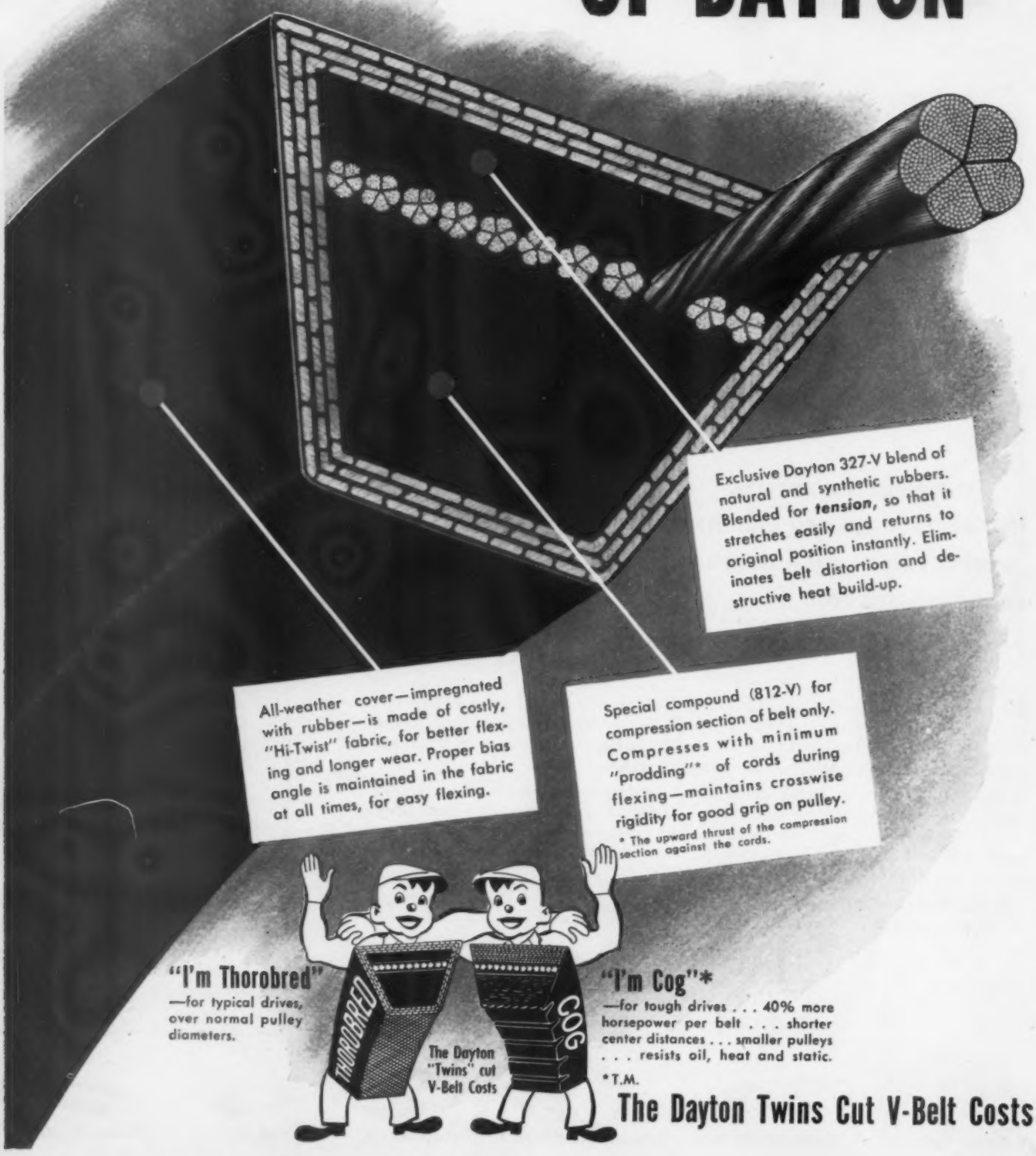


TYLER, TEX.



OGDEN, UTAH

HERE'S THE INSIDE OF DAYTON



Exclusive Dayton 327-V blend of natural and synthetic rubbers. Blended for ***tension***, so that it stretches easily and returns to original position instantly. Eliminates belt distortion and destructive heat build-up.

All-weather cover—impregnated with rubber—is made of costly, "Hi-Twist" fabric, for better flexing and longer wear. Proper bias angle is maintained in the fabric at all times, for easy flexing.

Special compound (812-V) for compression section of belt only. Compresses with minimum "prodding"* of cords during flexing—maintains crosswise rigidity for good grip on pulley.

* The upward thrust of the compression section against the cords.

"I'm Thorobred"
—for typical drives, over normal pulley diameters.

"I'm Cog"*
—for tough drives . . . 40% more horsepower per belt . . . shorter center distances . . . smaller pulleys . . . resists oil, heat and static.

*T.M.

The Dayton Twins Cut V-Belt Costs

STORY

V-BELTS' GREAT ENDURANCE!

The cords are the heart of any V-Belt—they carry the load. *Each* cord in a Thorobred Belt has thousands of continuous filaments, of high-tenacity rayon. Made exclusively for Dayton, these cords were developed after years of testing, to give high resistance to fatigue . . . extreme flexibility . . . great tensile strength!

Dayton—pioneer in the first successful method of chemically bonding rayon cords to rubber—now has a NEW *Thoro-Bond* method of coating *all* surfaces of each cord for better bond and longer cord life. In *Thoro-Bonding* the cord is untwisted just as it enters the dipping solution, then retwisted. Ordinary dipping processes coat only the *outer* surfaces of the cord—*Thoro-Bonding* coats *all* surfaces of every strand in the cord.



AT WORK 12 YEARS . . .
. . . STILL GOING STRONG!

This Dayton V-Flat Drive has been hard at work for a dozen years, operating at a West Virginia coal mine. And what shape are the Dayton Belts in, after that much work—exposed to gritty coal dust? The mine superintendent reports they're good for another 3 to 5 years!

© D. R. 1952

For the complete Inside Story of the savings Dayton V-Belts can make for you, call your Dayton Distributor. You'll find his name under "Belting" in your telephone directory. He has a *complete* line of belts for *every* power need—and he has the answers to your drive problems! Dayton Rubber Company, Dayton 1, Ohio.

Dayton Rubber

Since 1905

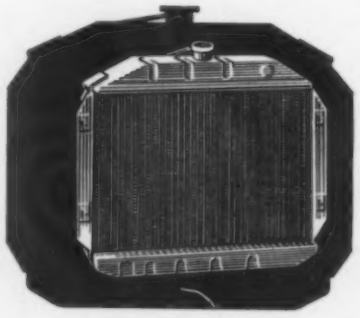
World's Largest Manufacturer of V-Belts

BUSINESS IN MOTION

To our Colleagues in American Business ...

Substitution of materials is of considerable concern to many manufacturers these days. Never before have we seen so much interest in the subject. However, it is by no means new to Revere, which has always held to the principle of recommending the metal that will best serve the customer. Thus, we have often suggested switching from one metal or alloy to another, with the object of lowering costs, increasing production, improving service, or all three.

When based on a detailed study of all the factors involved, substitution at times can be extremely valuable. In fact, the ever-increasing quality and service to be found in American products is due in part to the continued search for better materials, and their adoption when found. Better materials, better design, finer workmanship – these are part of American progress.



But there are instances, of course, when no practical substitute can be found, when only one material offers just the right combination of good qualities required for a given application. Take the automobile radiator. This has always been made of copper, because copper is the one and thus far only metal that perfectly meets all the requirements of manufacture and service. To make a radiator, very thin copper sheet and strip must be crimped, bent and otherwise formed. Copper's easy workability makes it ideal from the manufacturing standpoint. After assembly, the radiator is cleaned, and made water-tight by dipping in a bath of hot solder. Copper is exceptionally easy to solder. When in service on a car, truck or bus, the radiator must not rust, and must resist corrosion by water and anti-freeze. Copper is notable for its resistance to corrosion in such use. The radiator must also cool the water by radiating its heat into the air stream; copper has the highest heat conductivity of all commercial metals. A copper radiator thus is the most efficient and durable. It should outlast the car unless accidentally damaged, and when the injury is not so great as to make replacement necessary, the nearest shop can make repairs easily.

Recently it has been suggested that automotive radiators should be made of aluminum. However, both copper and aluminum are temporarily in short supply, and therefore to substitute one for the other does not appear to be practical. Beyond that, we do not believe – based upon experience to date – that aluminum's qualities, fine though they are, necessarily make it suitable for automotive radiators. In addition, the difficulties of retooling in the factory and repairs in the field must be considered. Revere fabricates both copper and aluminum, and we have reason to believe that our impartial advice to stay with copper for automotive radiators is concurred in by radiator manufacturers.

When you are tempted to substitute one material for another in your product, no matter what it may be, make certain you obtain all the facts as to costs, production, service. Your suppliers will be glad to collaborate with you in studying the effects of a proposed change. We suggest you take full advantage of their knowledge and experience.

REVERE COPPER AND BRASS INCORPORATED

Founded by Paul Revere in 1801

Executive Offices: 230 Park Avenue, New York 17, N. Y.

SEE "MEET THE PRESS" ON NBC TELEVISION EVERY SUNDAY

(*Continued from page* 296)

Smith, priorities chief, N.P.A., U. S. Department of Commerce, Los Angeles field office; Wayne Rising, vice-president, Ducommon Metals and Supply Co.; and L. J. Soracco, manager of sales, Bethlehem Pacific Steel Corporation.

David L. Wilt, purchasing agent, University of California, is program director of the conference.

OGDEN, PAULSEN, GUESTS AT CHICAGO ASSOCIATION MEETING

Chester F. Ogden, purchasing agent of Detroit Edison Company and president of the National Association of Purchasing Agents, was principal speaker at the April 10 meeting of the Purchasing Agents Association of Chicago. T. S. Paulsen, vice-president-purchases of Russell-Miller Milling Company, and vice-president of District 3, N.A.P.A., was also a guest and introduced President Ogden.

The meeting was a combined one with the Women's Division of the Association participating.

R. I. ASSOCIATION HOLDS PAST PRESIDENTS' NIGHT

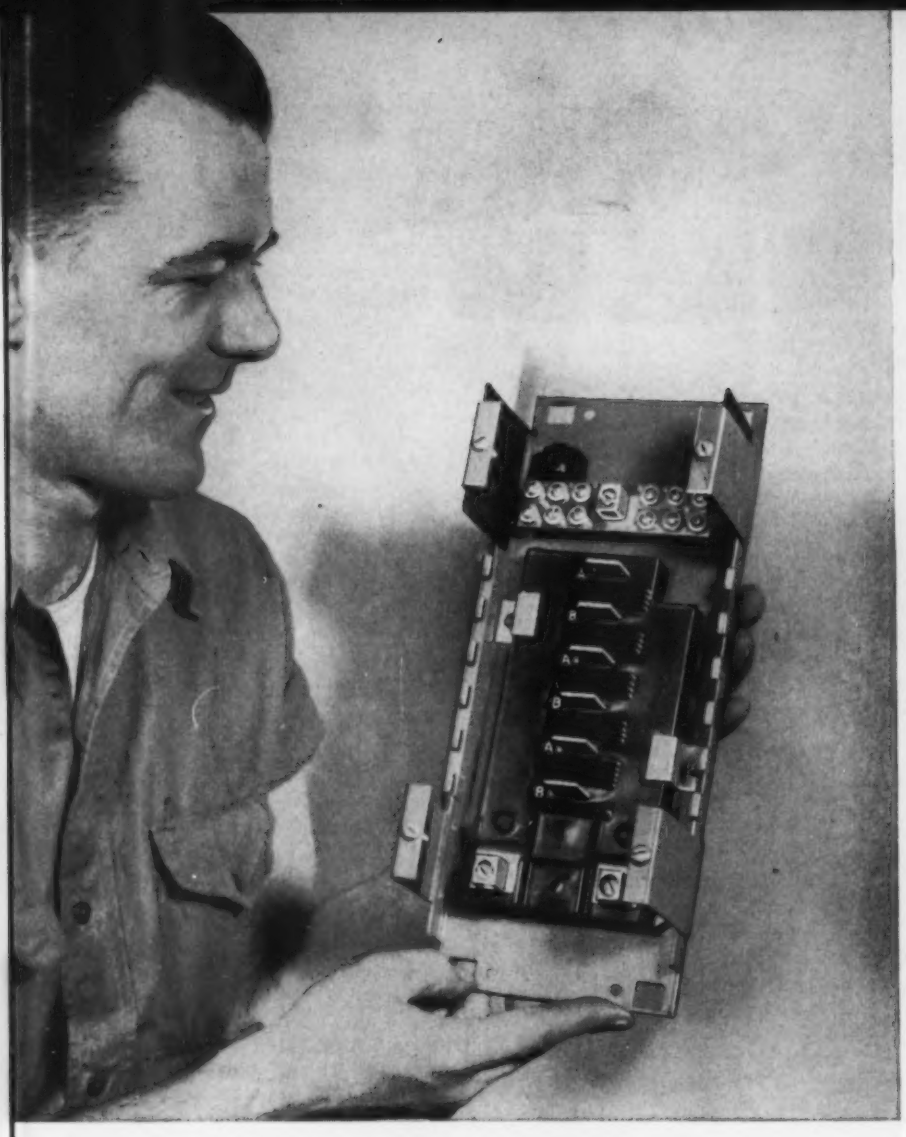
The annual "Past Presidents' Night" meeting of the Rhode Island Purchasing Agents Association was held at the Narragansett Hotel, Providence, R.I., on Wednesday, April 16. Guest speaker was Chester F. Ogden, president of the National Association of Purchasing Agents, and purchasing agent for The Detroit Edison Company. Laurence A. Fagan, purchasing agent of the City of Hartford, Conn. health department, and vice-president for District 9, N.A.P.A. was also a guest at the affair.

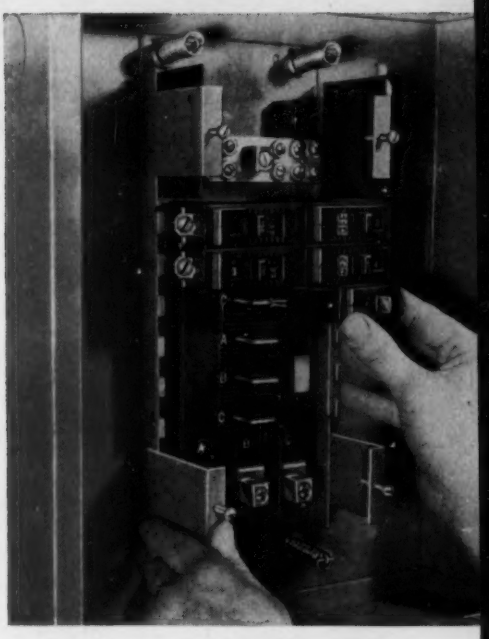
"TREE TO FINISHED PRODUCT" TOPIC AT M.P.A.C. MEETING

A regular meeting of the Metropolitan Purchasers Assistants Club was held on Tuesday, April 11, at the Midston House, New York, N. Y. Subject of the evening was "From the Tree to the Finished Product", featuring both a film and a discussion under the sponsorship of the National Container Corporation. Another film, entitled "Ambassador at Large", was shown through the courtesy of Rheem Manufacturing Company.

TRI-STATE ASSN. VISITS PETROLEUM REFINERY

A plant visit to the Ashland Oil & Refining Company, Ashland, Ky., featured the April 15 meeting of the Tri-State Purchasing Agents Association. Following the tour, a regular business meeting was held in Henry Clay Hotel, Ashland. Principal speaker was W. H. Humphreys, refinery chief engineer of the company. His subject was "Petroleum Refining."





QUICK-MAKE, QUICK-BREAK PLUG-IN BREAKER—Trumbull's new NLTQ Panelboard introduces the first *plug-in* circuit breaker with quick-make, quick-break operation. Other features: both *thermal* and *magnetic* protection . . . trip-free . . . pressure-type silver-plated copper plug-in contacts . . . all ratings physically interchangeable. Adjacent breakers are on alternate phases—assuring balanced loads and circuits.

New insulating material

KEEPS PANELBOARDS COOLER

The base of this panelboard interior is made of *Plastisol* . . . the first time this amazing plastic material has been used for this purpose.

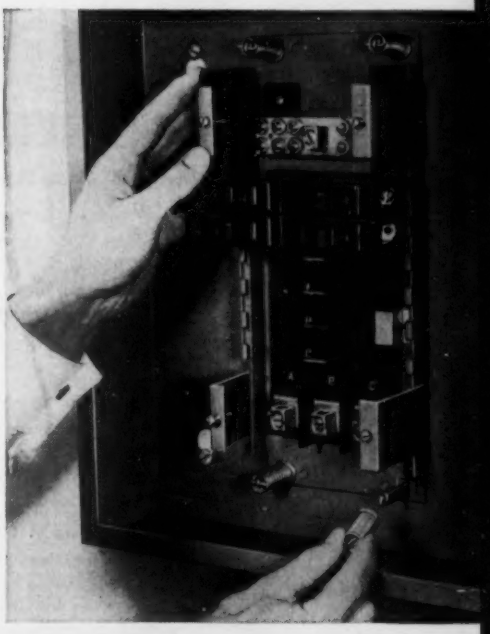
Here are some of the properties which make Trumbull's new NLTQ Panelboard a superior product which will give you excellent service.

Plastisol has very high thermal conductivity and is an excellent radiator of heat. Copper bus bars encased in Plastisol run 10% cooler than in open air!

SUPERIOR TO ALL OTHER TYPES OF INSULATION

Other Plastisol advantages making it superior to all other types of insulation for this purpose include its ability to resist acid and alkali, high temperatures (not harmed at 212 F), tracking and carbonizing. It will not shrink or become brittle, even at minus 30 F.

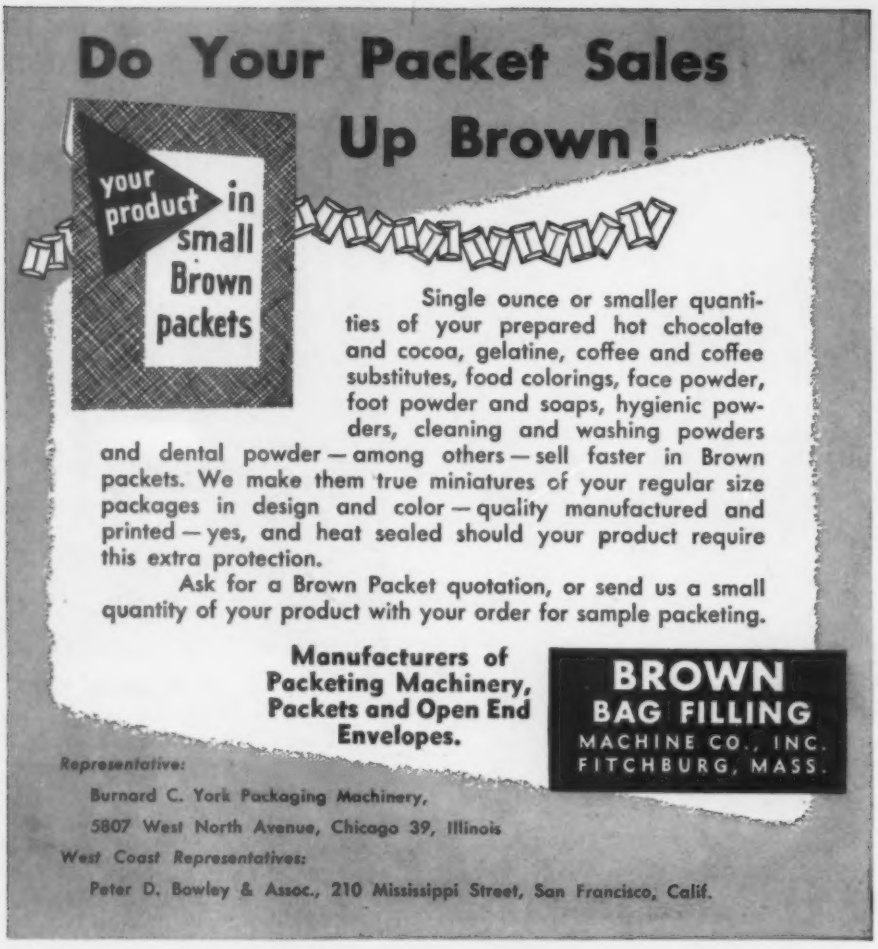
Trumbull's Plastisol base is Underwriters' Laboratories, Inc. approved and endorsed by the Electrical Council.



QUICK INSTALLATION—NO NUTS AND WASHERS—Interior is mounted in box by compression springs . . . which permit easy release for removal. Springs also permit lining up fronts regardless of uneven box installation. Trumbull NLTQ panelboards with lug or circuit breaker mains come in capacities up to 225 amperes in a range of 4 to 42 circuits. Write for Bulletin TEB-14.

TRUMBULL T ELECTRIC

DEPARTMENT OF GENERAL ELECTRIC COMPANY
PLAINVILLE, CONN.





PHILADELPHIA ASSN. AWARDS CERTIFICATES TO STUDENTS

A regular meeting of the Purchasing Agents Association of Philadelphia was held on April 10 at the Bellevue-Stratford Hotel. Principal speaker was George A. Renard, executive secretary-treasurer of the National Association of Purchasing Agents, on the subject "From One P.A. to Another."

Following the meeting, those who successfully completed the basic, techniques and administrative courses offered during the year by the educational committee, received their certificates of completion.

Speaker at the afternoon forum session was J. M. Kalbach, Jr., group supervisor of office methods and labor effectiveness, E. I. du Pont de Nemours & Company, Inc. Mr. Kalbach's subject was "Stores Accounting."

TWIN CITY ASSOCIATION VISITS B & B PLANT

The Twin City Association of Purchasing Agents had a combined plant visitation and regular meeting on Wednesday, April 16. The group first toured the plant of the Brown & Bigelow Company in St. Paul, and were then guests of the company at a social hour in the University Club of St. Paul.

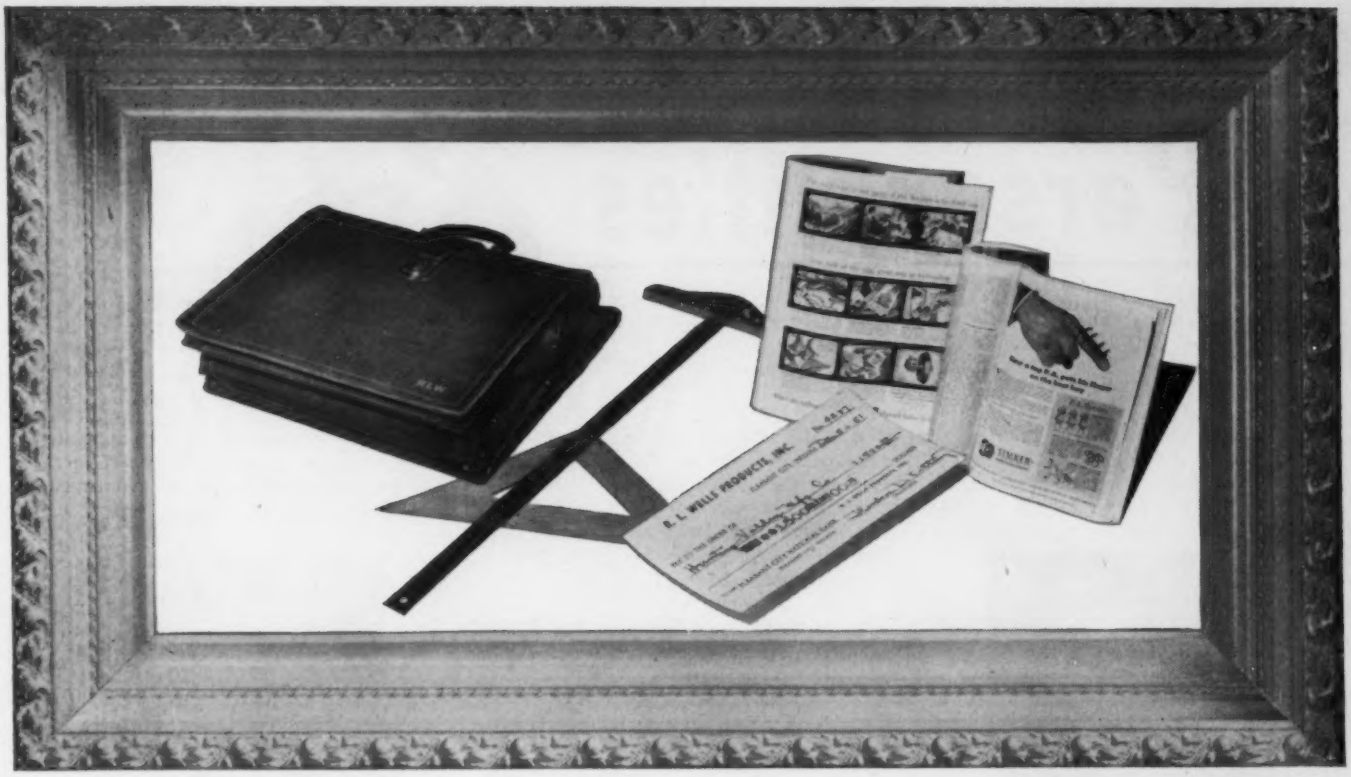
The dinner meeting was held in the University Club. Guest speaker was Newell Page, sales manager for the St. Paul district of Brown & Bigelow. His topic was "The Salesman and the Purchasing Agent." Accompanying his talk was an industry film entitled "Birth of a Calendar."

The usual pre-meeting huddle and the commodity discussion were omitted because of the social hour.

"HUMAN RELATIONS" FORUM AT CLEVELAND MEETING

The annual meeting and election of trustees of the Purchasing Agents Association of Cleveland was held at the Allerton Hotel on Thursday, April 17. Five of the following candidates were to have been chosen: C. E. Carlson, W. E. Gombert, H. Linnevers, R. S. Minning, A. J. Mitchell, P. Rebeta, A. Roterous, N. Schaufler, A. Schmidt, D. Sharpe, W. Toward. Final results will be carried in our next issue.

The final open forum of the season for the association, held at 5:00 p.m., featured a discussion on "Human Relations in Purchasing." Speakers were John H. Weeks, The Glidden Company, and Sterling S. Parker, Great Lakes Box Company. Among some of the topics covered were: How can you help create a sense of keener interest, spontaneous enthusiasm and deeper responsibility among the members of your department? Why do employees occasionally gain misconceptions concerning their jobs, their departments, their companies? How can a better understanding of human relations in purchasing lead to added efficiency?



How a top P. A. pictures value

WHEN looking for value in buying component parts, a top P. A. thinks of four things.

He thinks of sales—represented above by the salesman's briefcase—and selects *top quality* component parts that will increase the saleability of his company's product.

He thinks of *engineering service*—represented by the T-square and triangle—and buys component parts backed by complete engineering service.

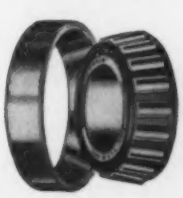
He thinks of *public acceptance*—represented by the advertisements—and selects component parts with wide public acceptance.

He thinks of *price*—represented by the check—because he is conscious of cost.

The formula below can help you get a true picture of value because it shows that the three factors—quality, service and public acceptance—outweigh price in determining value.

$$Value = \frac{quality + service + public\ acceptance}{price}$$

When it comes to tapered roller bearings, you get the best value if you buy Timken® bearings. They have the highest quality, the most extensive service support and the widest public acceptance. The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable address: "TIMROSCO".



TIMKEN

TRADE-MARK REG. U. S. PAT. OFF.

TAPERED ROLLER BEARINGS

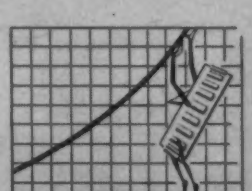
P. A. Notes:



HELP WHEN YOU NEED IT—You are assured of fast help from the Timken Company on your bearing and assembly problems. More than 100 engineers backed by more than 50 years of experience in bearing applications, work full time with customers' engineers.

QUALITY THAT STAYS ON TOP—Timken bearing users are assured of uniform high quality because the Timken Company rigidly controls quality at every step in manufacturing...from the melting of the steel to final bearing inspection.





SALES BOOSTER—Timken bearings in your product help it sell. Throughout industry, they are first choice for original equipment.

NOT JUST A BALL ◯ NOT JUST A ROLLER ▭ THE TIMKEN TAPERED ROLLER ▭ BEARING TAKES RADIAL ▯ AND THRUST →▯← LOADS OR ANY COMBINATION →✳←

Personalities IN THE NEWS



J. S. Roscoe, Director of Purchasing for Lincoln Electric Company, Cleveland, O., has been elected a member of the Board of Directors. He joined Lincoln in 1924



J. S. Roscoe

following his graduation from Ohio State University. He previously was district Manager for the company in Chicago. Pittsburgh and Syracuse, and was named Director of Purchasing in 1951.

Norman F. McCarthy has been elected Vice President of Mack Manufacturing Corporation and appointed Director of Purchases.

Mr. McCarthy, who will make his headquarters at Mack's Allentown, Pa., plant, began his business career with the Budd Company following his graduation from the University of Detroit. Later he served both the Buhl Stamping Company and the Chrysler Corporation. Immed-



Norman F. McCarthy

iately before assuming his present position, Mr. McCarthy was associated with the Martin-Parry Corporation as Director of Purchases and member of the policy committee.

Vincent J. Madden has been named Purchasing Agent for the ACF-Brill Motors Company, Philadelphia, Pa.

Edward A. Dubiel has been promoted to Purchasing Agent for the R. T. French Company, Rochester, N. Y.

R. G. Rincliffe, at one time purchasing agent for the Philadelphia Electric Company, has been elected President.

Charles R. Skinner, formerly Assistant to the Purchasing Manager, has been promoted to Purchasing Agent of Raw Materials for Pratt & Whitney Aircraft,



Charles R. Skinner

East Hartford, Conn. He will have charge of procurement of all raw materials, including sheet metal, bar stock, tubing, castings, forgings, and structural and maintenance steels.

A graduate of Washington and Lee University, Mr Skinner joined P&WA's purchasing department in 1941, as an expediter. He was promoted to buyer in 1942, and in 1943 was named Assistant to the Purchasing Agent. Since 1947 he has been Assistant to the Purchasing Manager, J. W. Dunnell.

Arthur G. Ostrander has been appointed District Purchasing Agent at the Garwood, N. J. works of the Aluminum Company of America. He succeeds G. W. Richards who has retired after 30 years service with the company.

Wendell P. McKown, Jr., formerly Purchasing Agent for Pratt & Whitney Aircraft Division, United Aircraft Corporation, has been appointed Works Manager of The Cooper Alloy Foundry Company, Hillside, N. J.

John D. Walter has been appointed Supervisor-Purchasing for the General Electric Company's receiver department, Syracuse, N. Y. Mr. Walter was at one



John D. Walter

time purchasing agent at Baltimore for James Stewart Company. He moved to Chicago and became Manager of Purchases and Materials and Coordinator for the Stewart Company. During the war he was loaned to the Navy and served as a Purchasing Agent at Chicago. He joined General Electric's purchasing section in 1950.

Eugene Stroud, Jr., has been promoted to Director of Purchases for Modern Welding Company. Owensboro, Ky. From 1937 to 1947 he worked as a draftsman and engineer for Ken-Rad Tube and

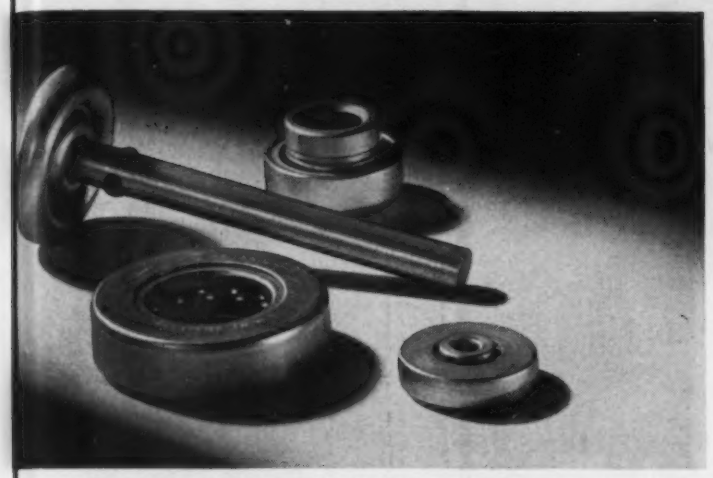


Eugene Stroud

Lamp Company. He joined Modern in 1947. Mr. Stroud is a member of the Purchasing Agents Association of Louisville.

(*Please turn to page* 306)

HOW A PLANT AWAITING NEW MACHINERY USES SUNTAC TO MAINTAIN EFFICIENCY



NO MORE MANUFACTURING DELAYS. The manufacturer of these bearings uses heavy-duty presses to blank out parts. The problem of press bearing failures due to inadequate oils has been eliminated by changing to Suntac.



CLEAN FLOOR, CLEAN MACHINE. Adhesiveness prevents Suntac Oil from squeezing out of the bearings. Before Suntac was used, floors had to be cleaned constantly to keep them from becoming slippery and dangerous.

A large ball-bearing manufacturer is using old heavy-duty presses for which replacements have long been on order. In the past, these presses frequently had to be shut down because of overheated bearings. The average life of bearings was only eight months, because the oil in use would not *stay in*, and each failure took the press out of production for a month or more. Many different oils were tried in an effort to remedy the situation. But none proved adequate for the job, and it was becoming increasingly difficult to maintain production schedules.

Finally the company called in a Sun representative for consultation and changed to a Suntac Oil at his suggestion. The adhesiveness of Suntac has prevented its squeezing out and has kept the bearings running cool. The presses have operated without a bearing failure ever since the adoption of this "Job Proved" lubricant.

Having trouble keeping old equipment *on the job* while waiting for new? If so, send in this coupon.

SUN OIL COMPANY, Dept. PU-5, Philadelphia 3, Pa.

We are having bearing failures possibly caused by faulty lubrication.

☐ Please have a Sun representative call.
☐ Send me your booklet "Suntac Oil Case Histories."
☐ Send me your technical bulletin "Lubrication of Industrial Machinery."

Name_____

Title_____

Company_____

Street_____

City_____ Zone_____ State_____

TECHNICAL ASSISTANCE AVAILABLE. Sun's engineers are at your service for consultation on lubrication matters. It will pay you to utilize the broad experience they have gained in solving a wide variety of problems in many different industries.

SUN INDUSTRIAL PRODUCTS

SUN OIL COMPANY, PHILADELPHIA 3, PA. • SUN OIL COMPANY, LTD., TORONTO AND MONTREAL

SUNOCO



No. 2,107,541,808

In twenty-five years, Anti-Corrosive has already passed the *two billion* mark in fastenings of stainless steel! Certainly this is your cue to remember Anti-Corrosive, America's oldest and largest firm dealing *exclusively* in stainless steel fastenings, when your requirements call for screws, nuts, bolts, rivets, pins or any other fastening of stainless steel! And, although most current *production* requires priority ratings, there are millions of items IN STOCK, ready for *immediate delivery*, so check with Anti-Corrosive *first* for your needs!

FREE—A-N Stainless Fastening Selector

A handy slide-chart which instantly identifies A-N Nos. pertaining to stainless steel nuts, screws, bolts, rivets, cotter pins, washers; gives sizes and other data. Write for "Chart 52P" TODAY! Free catalogue also available.

25 YEARS OF LEADERSHIP IN FASTENINGS OF STAINLESS STEEL

Anti-Corrosive Metal Products Co., Inc.

Manufacturers of STAINLESS STEEL FASTENINGS

CASTLETON ON HUDSON, NEW YORK

Thomas Reath, Jr., has been promoted from Buyer to Purchasing Agent of The Riverside Metal Company, Riverside, N. J. He replaces Henry C. Ayton, resigned. Mr. Reath, who has been at Riverside since 1949, is a graduate of the Wharton School of the University of Pennsylvania.

N. E. Schall has been appointed Purchasing Agent of The Clark Controller Company, Cleveland, O. He succeeds the late A. J. Zinger. W. E. Anderson has been named Assistant Purchasing Agent.



N. E. Schall



W. E. Anderson

Mr. Schall has been with the company since 1941, and had been Assistant Purchasing Agent since 1945. Mr. Anderson has been with the company since 1945.

Major George J. Cronin, who has served as state purchasing agent of Massachusetts under nine governors since 1925, has been reappointed to another four-year term by Governor Dever. A former purchasing agent for the city of Boston and World War I intelligence officer, Major Cronin has held the same position in the state service for more consecutive years than any other appointive officer.

Ralph D. Berry, Vice President and Director of Purchases, Davol Rubber Company, Providence, R. I., recently lectured on "Reports to Management" at the Brown University Faculty Club. His address was one in a series of advanced discussions in the course on Purchasing Administration and Techniques, sponsored by the educational Committee of the Rhode Island Purchasing Agents Association.

(*Please turn to page* 310)

YOUR C-D-F SALES ENGINEER

is a good man to know!

Here's the man trained to solve your materials specification problems in plastics. He knows what's new with C-D-F and how *you* can use the service proved C-D-F non-metallic materials.

The way he sells is to help you . . . his wide technical background in the electrical and mechanical industries helps you avoid design pitfalls, can point out production shortcuts; that's why you should call him in when a new product is on the board.

Under his hat and in his case is the information you must have to meet competition and to build a better product. Backed up by the practical experience and research of C-D-F's six plants, it's no wonder it makes common sense to see the man from C-D-F (Sales offices in principal cities). *He's a good man to know.*



● **ACROSS THE BOARD**

C-D-F plastics have special characteristics, can meet close tolerances, rigid specifications. Learn the facts, get the complete story from the man from C-D-F.



● **OVER THE DESK**

When talking prices and delivery, you get action, not promises. The C-D-F salesman takes a personal interest in your problems . . . "follows through" on your order.



● **IN THE SHOP**

Whether it's our plant or yours, here's a man with a quick eye for cutting costs, improving quality. Years of practical training plus imagination = Your C-D-F salesman.



CDF

Continental-Diamond Fibre Company

NEWARK 41, DELAWARE

Do you really know you couldn't do



Only CARBO

TRADE

"Carborundum" is a registered trademark which indicates manufacture by The Carborundum Company, Niagara Falls, New York

it faster with an abrasive DISC?

A healthy skepticism is the profitable approach for you to take, nowadays, to every abrasive operation in your shop. The difference between a bad and a good profit factor can often be a new improvement in grinding, and new developments in this field are piling up daily under the crucial necessity of cutting costs without cutting corners.

If there's a faster, better way to perform any grinding or polishing operation, your CARBORUNDUM or distributor salesman is one man who's sure to know about it. Through him, and with his unbiased help, you can change your operating methods, if that seems indicated. Or you can change the abrasive you're using. Or both, or neither. The point is...both you and he are operating on *your* side of the desk—primarily for your profit, incidentally for his...not the other way round.

That's what comes of working with the man who represents the only complete line of branded abrasives, unsurpassed in scope, unexcelled in quality. So, today—call in the man from CARBORUNDUM: it's to your profit!





Here are only a few of the 30,000 reasons why you get the RIGHT combination of abrasive and method only from CARBORUNDUM

RUNDUM
MARK

offers ALL abrasive products...to give you the proper ONE

LOW CARBON • HIGH CARBON • ALLOY • STAINLESS • STRIP AND TUBING

UNIFORM
HIGH QUALITY
Demands
MODERN
EQUIPMENT



Production of steel strip and tubing to meet modern industry's rigid specifications demands the most modern equipment. During the last 30 years, The Wallingford Steel Co. has kept pace with developments in both machinery and techniques by sponsoring a continuous program of replacement and improvement. Today, not one piece of original equipment is still in use. The two-stand, four-high tandem rolling mill shown above is an outstanding example of the many precision built production machines in our completely equipped plant. Electrolimit continuous mill gages provide a constant check in holding sheets to extremely close tolerance.

THE
WALLINGFORD
SINCE 1922
STEEL
CO.
WALLINGFORD, CONNECTICUT, U.S.A.

E. E. Bonsper has been appointed Purchasing Agent of Clark Bros. Co., Inc., Olean, N. Y., succeeding the late R. W. Keeny. Assistant to Mr. Keeny for the past six years, Mr. Bonsper was formerly with National Powder Company. He is a member of the Purchasing Agents Association of Northwestern Pennsylvania.

Arthur G. Pearson has resigned as Director of Purchasing Policy for the American Meat Institute, Chicago, to accept an appointment as Assistant Director of Procurement for the Board of Education, City of Chicago. Mr. Pearson is a past president of the Chicago Purchasing Agents Association.

Douglas A. Campbell has been appointed Assistant Purchasing Agent of the Willard Storage Battery Company, Cleveland, O. Frank L. Kulow is Director of Purchases. Mr. Campbell was formerly a member of the purchasing department of the Reliance and Electric Engineering Company.



Douglas A. Campbell

A. James Crowley and **Don Mortlock** have been appointed Assistant Purchasing Agents for Aeroquip Corporation, Jackson, Mich. They take over the duties of Robert C. Colyer, appointed manager of Elbeeco, Inc., a wholly owned subsidiary of the company. For the past year, Mr. Colyer directed Aeroquip's extensive subcontracting and raw materials program. Mr. Crowley will handle the subcontracting and Mr. Mortlock will take over procurement of raw materials.

John P. Connolly has been appointed Purchasing Agent for Universal Winding Company, Providence, R. I. He succeeds Fred C. Potter who has retired from active participation in company affairs after 40 years as Purchasing Agent. Mr. Connolly has been with Universal 16 years in many capacities, including those in the methods and production departments, and as administrative assistant to the Vice President in charge of manufacturing.

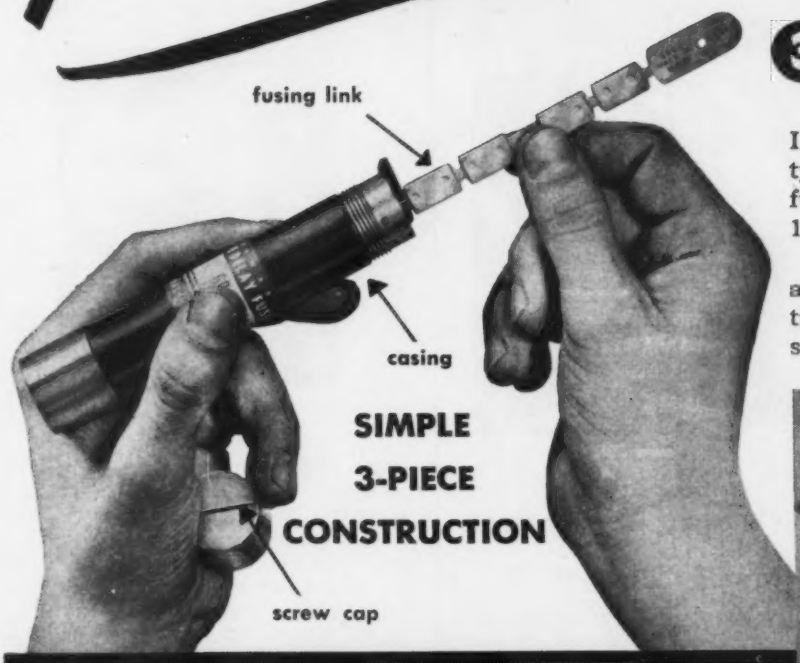
Robert J. Johnson, Purchasing Agent for Standard Steel Corporation, Los Angeles, Calif., has been elected to the Board of Directors and appointed Treasurer.

(*Please turn to page* 312)

1-2-3

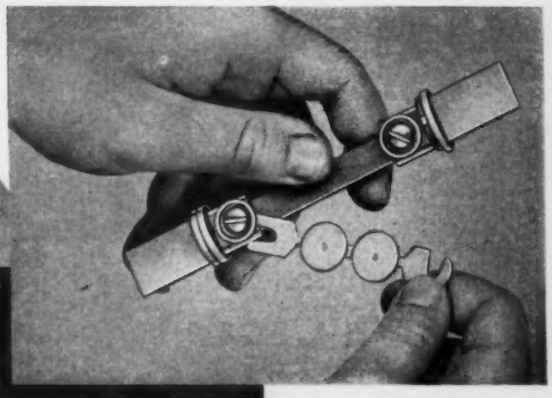
Here's all you do...

1. **Unscrew cap and let blown fuse-link pieces drop out.**
2. **Insert new fuse link. It aligns itself automatically.**
3. **Replace cap.**



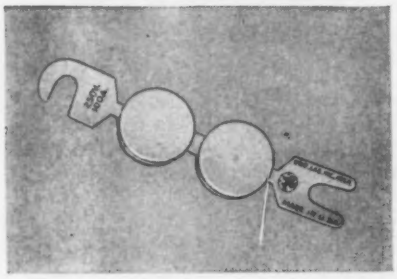
It's that simple to renew these G-E ferrule-type fuses. No need to juggle small parts, no fussing with alignment, no time wasted. Just 1-2-3 and the fuse is back on the job.

With the knife-blade type, you simply slip a new link under the clamping screws and tighten. Then replace the knife-blade and screw on the cap.



Renewable TIME-DELAY FUSES

CUT DOWNTIME THIS EASY WAY



Wide sections of G-E fuse links dissipate heat of harmless, momentary overloads — give measured time-delay. Narrow sections blow fast to cut off dangerous surges.

Plan now to reduce the downtime that's caused by unnecessary fuse renewals. G-E time-delay fuses let harmless momentary overloads pass, blow fast to cut off shorts or dangerous overloads.

So, for full-time operation—with no unnecessary fuse replacements—get the fuse that's designed to cut downtime. Get G-E renewable time-delay fuses.

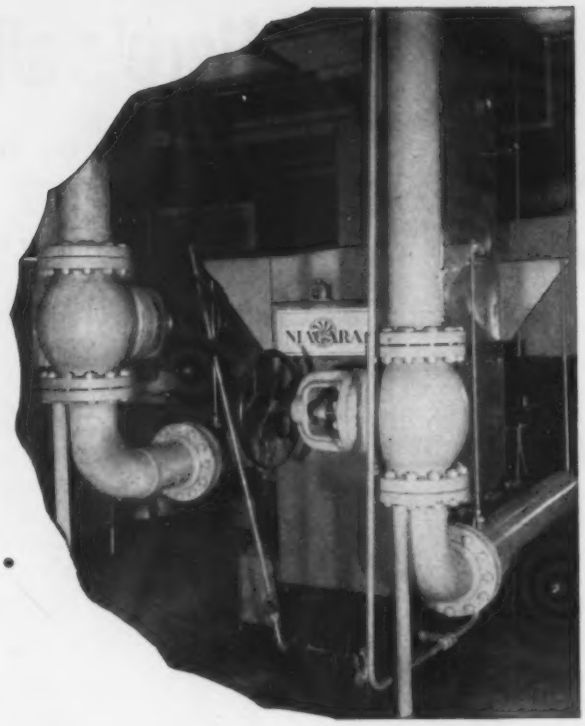
For complete data, address Section D1-570, Construction Materials Division, General Electric Company, Bridgeport 2, Conn.



You can put your confidence in—

GENERAL ELECTRIC

How to get drier or cooler gases . . .



NIAGARA AERO AFTER COOLER cools a compressed gas, or air, below the temperature of the surrounding atmosphere, thus preventing the condensation of moisture in your lines. The gas will contain only half of the moisture left in it by conventional methods. Even drier gas can be produced if you require it.

In working with controlled atmospheres of inert gases to prevent undesired reactions, this dryness of the gas at low cost is a great advantage. The cost of the Niagara method is low because it uses evaporative cooling, saving 95% of the cost of cooling water (and its piping and pumping). This direct saving of cost pays for the Niagara cooler in less than two years.

If you use compressed air to operate tools or pneumatic equipment you save much in water and oil damage to tools and equipment, and in water damage to materials by using the Niagara Aero After Cooler.

Write for a bulletin, or ask nearest Niagara Field Engineer if you have a problem involving the industrial use of air.

NIAGARA BLOWER COMPANY

Over 35 Years' Service in Industrial Air Engineering

Dept. PU, 405 Lexington Ave. **New York 17, N. Y.**

Experienced Field Engineers in Principal Cities of U. S. and Canada

Mathew Johnson has been appointed Purchasing Agent for National Pallet Corporation, Pittsburgh, Pa. He was formerly with Curtiss Wright and Admiral Pre-Fabricated Homes in the same capacity.

C. Colgate Fish of the Negea Service Corporation has been appointed General Purchasing Agent of the New England Gas and Electric Association, Cambridge, Mass. He succeeds Thomas P. Varley, who recently retired.



C. Colgate Fish

Mr. Fish entered utility work with the subsidiary New Hampshire Gas and Electric Company in 1951. In 1932 he transferred to Association headquarters as system storekeeper. Since 1939 he has been Assistant Supervisor of Stores and Assistant Purchasing Agent.



Thomas P. Varley

Mr. Varley had more than 50 years service with the New England Gas and Electric System. He served as Supervisor of Stores for the system from 1929 and as General Purchasing Agent from 1945.

D. M. Johnson, formerly Purchasing Agent for American Paper Stock Company, Indianapolis, Ind., has been made Secretary of the company.

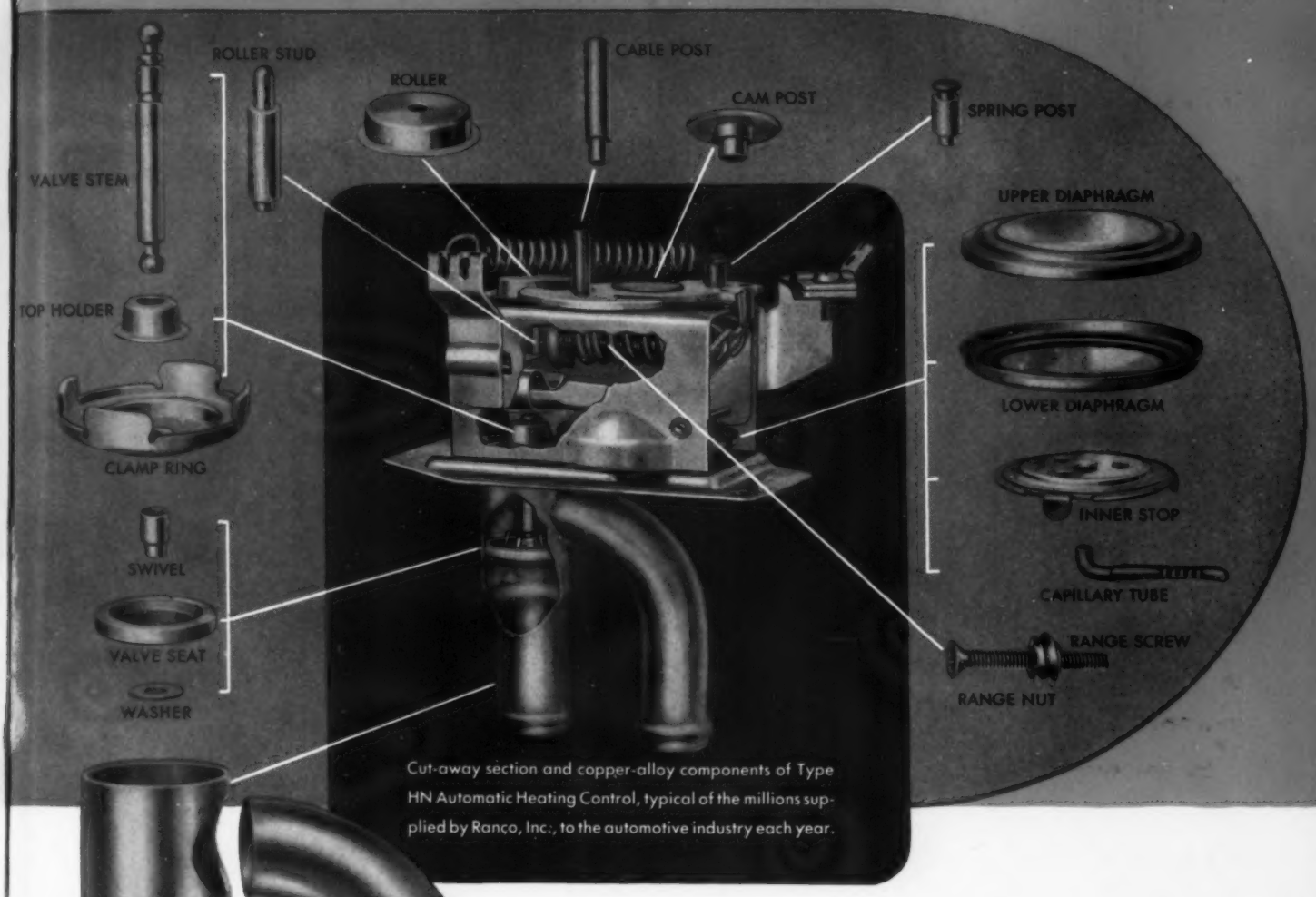
A. T. Clay, formerly Purchasing Agent for Hetherington & Berner, Inc., Indianapolis, Ind., has been named Chief Engineer of the company.

John H. Spade has been appointed to the newly-created post of Purchasing Manager of Hamilton Standard Division, United Aircraft Corporation, East Hartford, Conn. Mr. Spade was formerly divisional accountant.

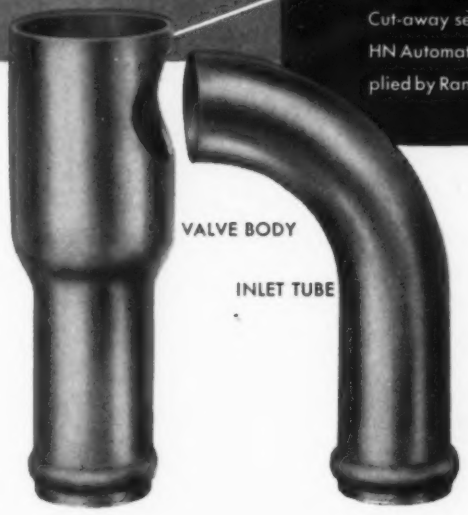
(*Please turn to page* 316)

COPPER and BRASS for lasting dependabilty

42,000,000 Ranco Controls *prove it!*



Cut-away section and copper-alloy components of Type HN Automatic Heating Control, typical of the millions supplied by Ranco, Inc., to the automotive industry each year.



For twenty-four years, Ranco, Inc., Columbus, Ohio . . . world's largest manufacturer of refrigeration and automobile heater controls, has made extensive use of Anaconda Copper, Brass and Bronze to build lasting dependability into its top-quality, low-cost units.

In fabricating these parts, nothing takes the place of copper and its alloys for machining, forming, soldering and brazing. In this type of service, no other materials offer the combined advantage of high corrosion resistance, freedom from rust and high heat-transfer properties.

Anaconda Metals, unsurpassed by any in the industry, are made by The American Brass Company, General Offices, Waterbury 20, Connecticut. 5288

ANACONDA

COPPER and COPPER ALLOYS



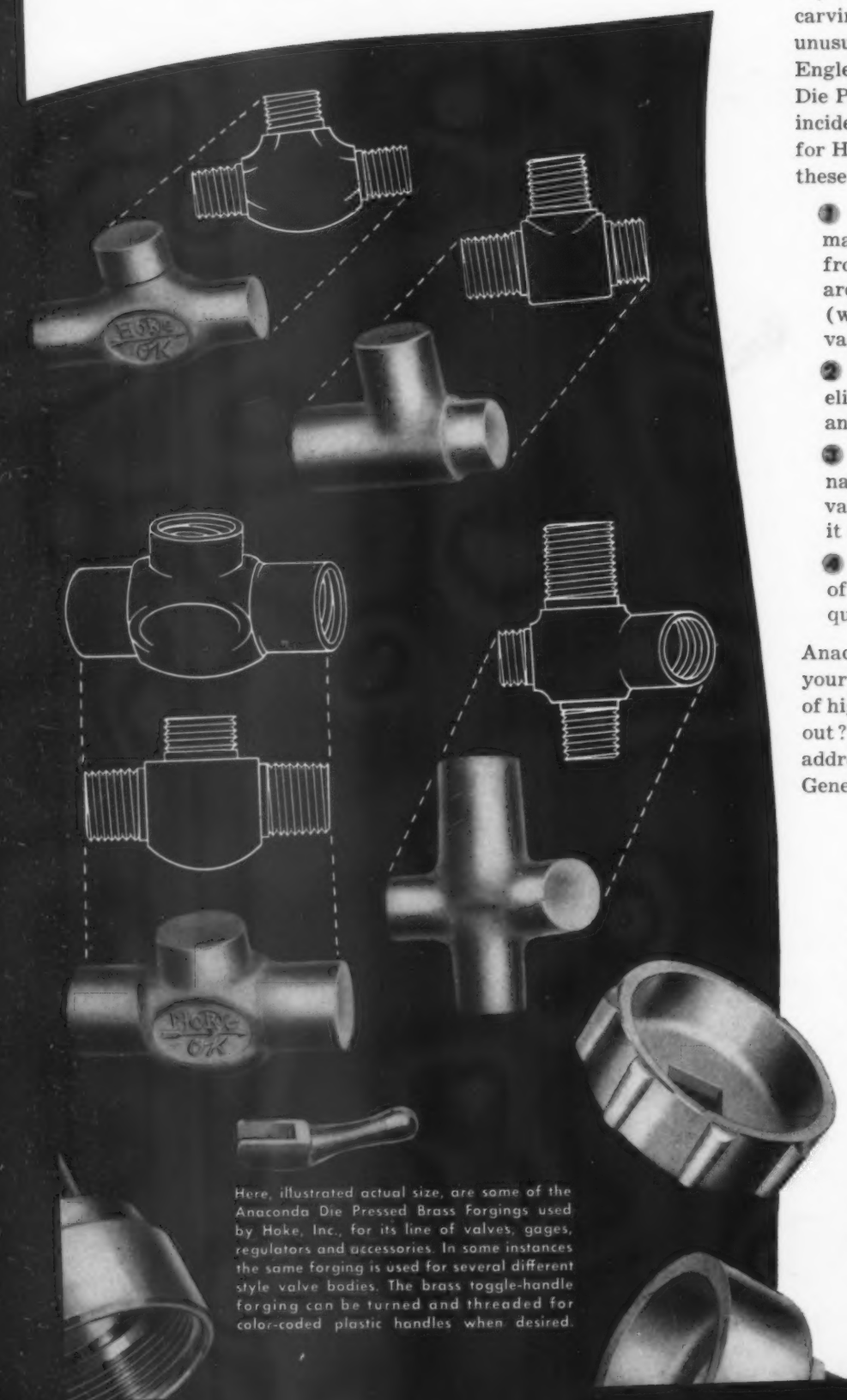
FOR TOGGLE VALVES LIKE THIS

Die Pressed Forgings give Hoke, Inc., plenty to talk about...

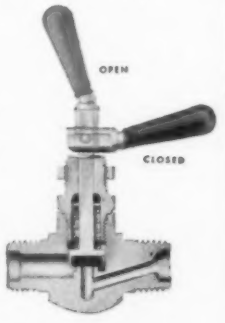
If you've been using sand castings, or carving away a lot of metal to arrive at an unusual shape, listen to what Hoke, Inc., of Englewood, N. J. has to say about Anaconda Die Pressed Forgings. And this enthusiasm, incidentally, is tempered with experience, for Hoke has used hundreds of thousands of these forgings a year—for many years.

1. "These forgings are solid, readily machined and dense-grained metal. Made from sections of extruded brass rod, they are 'twice wrought' and *free of porosity* (which is even more important in high vacuum than in high pressure service).
2. Their die-like dimensional accuracy eliminates filing and fussing to fit jigs and fixtures.
3. The surface of these valve bodies is naturally smooth—and gives the finished valve that 'precision product' appearance it deserves.
4. Economy? Yes indeed! We sell some of these solid brass Hoke Valves, in quantity, for less than a dollar apiece!"

Anaconda Die Pressed Forgings may be your answer to that elusive combination of high quality and low cost. Why not find out? Write for a copy of Publication B-9 addressing The American Brass Company, General Offices, Waterbury 20, Connecticut.



Here, illustrated actual size, are some of the Anaconda Die Pressed Brass Forgings used by Hoke, Inc., for its line of valves, gages, regulators and accessories. In some instances the same forging is used for several different style valve bodies. The brass toggle-handle forging can be turned and threaded for color-coded plastic handles when desired.



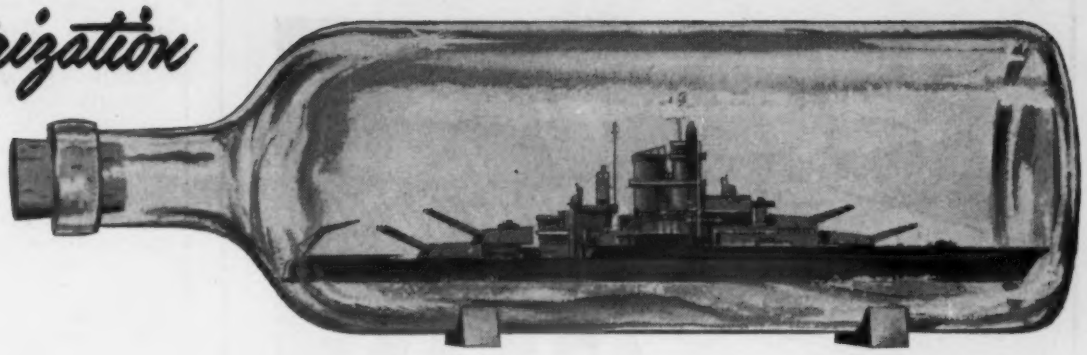
Designed for either pipeline installation or panelboard mounting, the Hoke "On-Off" Toggle Valve can be used in series with sensitive throttle valves, and for high pressure or high vacuum service. Made of brass in ⅛", ¼" and ⅜" sizes, they have been the answer to many flow-control problems.

DEPEND ON TWICE-WROUGHT

ANACONDA

DIE PRESSED FORGINGS

Miniaturization



Mighty Midgets in Plastics

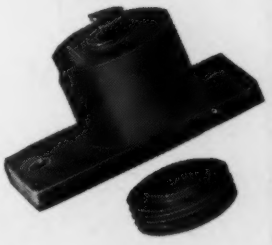












For the newest important developments on the plastics front, look to the intensive miniaturization program underway in the electronics and communications fields. Working, in this case, through the vast resources of RCA, the program calls for intense miniaturization in size, and reduction in weight, of physical components. Idea, of course, is to produce smallest, lightest, assemblies possible–with greatly improved efficiency–for a scope of use impossible with unwieldy old equipment.

What a made-to-order spot for plastics! And for a moulder! The terminal boards, insulators, coil cases and covers (shown here actual size) have tolerances so close that in some instances, they are machined to final dimensions. There are wall sections as thin as .012". Inserts are fine Swiss screw machine plated parts with exacting thread fits assembled to microscopic dimensions. Materials are low-loss mica-filled phenolics.

There's a production story here, too! With such necessary precision, commercial production was at first thought to be impossible. Within three weeks, we produced experimental tooling and a production method using compression and plunger techniques along with a combination of the two. *And then, carefully analyzing our experimental program, we designed and produced production tooling–and are now meeting production quotas and rigid inspection with commercial moulding methods!*

We can't offer you a better recommendation. For small parts–or large ones–we can put lots of experience at your disposal.

Kurz-Kasch, Inc. • 1431 South Broadway • Dayton 1, Ohio

Branch Sales Offices: New York, *Lexington 2-6677* • Rochester, *Hillside 4352* Chicago, *Harrison 7-5473* • Detroit, *Trinity 3-7050* • Philadelphia, *Granite 2-7484* Dallas, *Logan 1970* • Los Angeles, *Richmond 7-5384* • St. Louis, *Delmar 9577* • Toronto, *Riverdale 3511* • ***Export Office:*** 89 Broad Street, New York City, *Bowling Green 9-7751.*



Kurz-Kasch

FOR OVER 36 YEARS PLANNERS AND MOULDERS IN PLASTICS



IF GLASS CAN BE SUBSTITUTED....

for critical metals—get in touch with INDIANA GLASS COMPANY. We have a wealth of information available for anyone who wants to explore the possibilities of using glass—one of the most versatile of all materials.

Your inquiries will be welcomed by our Engineering Department

Simply send us a sketch, or tell us what you have in mind.

Indiana glass

INDIANA GLASS COMPANY

ESTABLISHED 1907

DUNKIRK, INDIANA

Harold N. Taylor has been named Assistant Director of Purchases for Le Roi Company, Milwaukee, Wis. The announcement was made by K. L. Morgan, Director of Purchases. Mr. Taylor was formerly Assistant Treasurer and Purchasing Agent at Fairmount Tool and Forging Company, and recently buyer and expediter located in Cleveland, O. for Le Roi.

Arthur F. Kless succeeds him as buyer and expediter in Cleveland.

W. A. Glimm has been appointed Director of Purchases for Gar Wood Industries, Wayne, Mich. Mr. Glimm succeeds the late C. M. Strong.



W. A. Glimm

Mr. Glimm has been with the company since 1948 when he took over the job of Purchasing Agent at Gar Wood's Findlay division at Findlay, O. He began his business career in Grand Rapids, Mich. with Nash-Kelvinator in 1929. From 1943 to 1948 he was a buyer with Avco Mfg. Corp., Nashville, Tenn.

Don L. Kelker has been appointed to head the purchasing department of the Duriron Company, Dayton, O. He succeeds Maxwell W. Smith, who has retired. Mr. Kelker was formerly Assistant Purchasing Agent.

AMONG THE COMPANIES YOU BUY FROM

Dayton, O.—Parker Appliance Company. The J. N. Fauver Co., newly established here at 1534 Keystone Ave., will distribute Parker tube fittings, tube fabricating tools and related power plant accessories.

Buffalo, N. Y.—Sterling Electric Motors, Inc. A new sales office has been opened here with J. W. Byrnes as manager.

Cincinnati, O.—E. W. Buschman Company. Otto Svoboda has been named sales manager.

Hartford, Conn.—Plax Corp. P. J. Murphy has been appointed sales manager of blownware products and C. N. Sprankle sales manager of extruded products.

(*Please turn to page* 318)

How to cut forging costs



ONE GOOD WAY to make *more* forgings at *less* cost is to line your furnaces with B&W Insulating Firebrick.

For example, A. FINKL & SONS—a leading manufacturer of heavy forgings and a pioneer user of B&W Insulating Firebrick—has made appreciable fuel savings with these lightweight brick. What's more, this company found that B&W Insulating Firebrick have given up to 3 years life in their forging furnaces.

The table below shows five other typical records of B&W IFB savings.

COST SAVING DATA ON DROP FORGE FURNACES LINED WITH B&W INSULATING FIREBRICK

Furnace	Type of Forge	Type of Furnace	Controls	B.T.U./lb. Steel		Reduction in cost of Producing Forgings
				Ordinary Firebrick Lining	Insulating Firebrick Lining	
A*	Upset	Slot	Full	4960	1570	$2.27/ton
B	Steam Hammer	Slot	Air–Fuel	6500	3760	$2.16/ton
C	Drop Hammer	Slot	Full	4000	2400	$1.28/ton
D	Steam Hammer	Slot	None	3180	1620	$1.24/ton
E	Steam Hammer	Slot	Full	3500	1400	$1.52/ton

*All furnaces except "A" spring mounted.

Since durable B&W Insulating Firebrick store and conduct less heat, they also assure better temperature and quality control. By reducing cycle time, they make possible higher furnace output. All these advantages are due to B&W's three decades of specialized refractories engineering.

The defense plant expansion program has created unprecedented demands for B&W Insulating Firebrick. It is, therefore, necessary to anticipate your requirements as far in advance as possible.

BABCOCK & WILCOX

THE BABCOCK & WILCOX CO.
REFRACTORIES DIVISION
GENERAL OFFICES: 85 LIBERTY ST., NEW YORK 6, N.Y.
WORKS: AUGUSTA, GA.

R-385

B&W REFRACTORIES PRODUCTS—B&W Allmul Firebrick • B&W 80 Firebrick • B&W Junior Firebrick • B&W Insulating Firebrick B&W Refractory Castables, Plastics and Mortars • OTHER B&W PRODUCTS—Stationary & Marine Boilers and Component Equipment... Chemical Recovery Units . . . Seamless & Welded Tubes . . . Pulverizers . . . Fuel Burning Equipment . . . Pressure Vessels . . . Alloy Castings.

an ACCO product WIRE

ROUND

FLAT OR SHAPED

PAGE

makes them all...

LOW CARBON
HIGH CARBON
STAINLESS
SPECIAL ALLOY
ARMCO IRON

YOU draw the Shape
—Page can draw the Wire

Tell us the way *you* want it. We'll follow *your* specifications.

Cross-sectional areas up to .250" square; widths up to 3/8"; width-to-thickness ratio not to exceed 6 to 1.

Wire or Write Today

PAGE WIRE

ACCO

PAGE STEEL AND WIRE DIVISION
AMERICAN CHAIN & CABLE

Monessen, Pa., Atlanta, Chicago, Denver, Detroit, Los Angeles, New York, Philadelphia, Portland, San Francisco, Bridgeport, Conn.

Los Angeles, Calif.—Mueller Brass Company. Theodore Howard has been appointed manager of the branch sales office here.

Chicago, Ill.—The Diversey Corporation. W. G. Rainey, formerly manager of the company's Nashville, Tenn., sales district, has been named assistant manager of the southern division.

Los Angeles, Calif.—John A. Roebling's Sons Company. A new Los Angeles district office and warehouse has been opened at 5340 East Harbor Street.



Waterbury, Conn.—Chase Brass & Copper Company. Charles L. Mosely, for the past 13 years manager of the Rochester, N. Y. office, has been transferred here to assume the position of district manager of the Chase Waterbury territory. He succeeds Wooster Canfield, retired.

Wilmington, Del.—Hercules Powder Company. Herbert M. Wendle has been appointed assistant director of sales for the Naval Stores Department, in charge of rosin and terpene chemicals. He has been manager of the department's New York office for the past seven years.

Waterford, N. Y.—General Electric Company, Chemical Division. Robert J. Baumann has been appointed sales manager of silicone products, with headquarters here.

San Francisco, Calif.—Graton & Knight Company. Alex Reikes has been named manager of the company's branch here, to succeed John N. Daniels, who has resigned to return to England.

Philadelphia, Pa.—Henry Disston & Sons, Inc. John E. Newlin, Jr., has been appointed sales manager of the steel division. He succeeds H. D. Siegfried, who retired after 27 years with Disston.

Latrobe, Pa.—Kennametal Inc. S. Allen Oviatt has been appointed manager of sales engineering, Kentanium products.

Philadelphia, Pa.—Minneapolis-Honeywell Regulator Company, Brown Instruments Division. William H. Steinkamp has been appointed sales manager of the company's industrial division. He has been industrial field sales manager since 1943. He succeeds L. Morton Morley, who continues as vice-president of the Brown Instruments Division.

Detroit, Mich.—Georgia-Pacific Plywood Company. Newest warehouse in the company's national chain is located here at 5159 Loraine Avenue, serving the greater Detroit area.

(*Please turn to page 322*)

Cushioned POWER

C/R JAW-HEAD

The best "soft" striking tool you can buy. Tough, resilient water buffalo faces deliver needed power, cushioned to protect fine finishes and delicate parts. Faces quickly and easily replaced. Safety-Flare handle gives comfortable, non-slip grip. When you need a "soft" hammer, make sure it's a C/R **Rawhide** Jaw-Head.



FACES REPLACED IN SECONDS

Merely loosening a nut releases jaws for replacing faces. Tightening nut holds faces in vise-like grip.

Available from leading industrial suppliers. Also C/R Rawhide mallets and Rawhide mauls.

For further information write Dept. 22

CHICAGO Rawhide MFG. CO.
1301 Elston Ave., Chicago 22, Ill.
In Canada: Super Oil Seal Mfg. Co., Ltd., Hamilton, Ontario

NOW! Industry's most famous electric drill is finer than ever!

NEW Black & Decker 1/4" Heavy-Duty HOLGUN* only $44.00



★ Built to take it—husky, high-quality parts make it really HEAVY-DUTY!

★ B&D-built motor has 25% MORE POWER, can't be stalled at rated capacity! Can be supplied with any one of six spindle speeds, from high torque at 600 r.p.m. to high speed at 5,000 r.p.m.

★ Light weight (only 3¼ lbs.) cuts fatigue to the bone!

★ Unmatched for close-quarter drilling—only 7¼" length—only ⅝" spindle offset!

★ New handle shaped for plenty of finger room!

*Trade Mark Reg. U. S. Pat. Off.

TRY THIS HUSKY HANDFUL OF POWER YOURSELF . . . TODAY!

LEADING DISTRIBUTORS EVERYWHERE SELL

B&D Black & Decker PORTABLE ELECTRIC TOOLS

WORLD'S LARGEST, MOST COMPLETE LINE

Let your nearby Black & Decker Distributor demonstrate this latest version of the most famous Drill in the electric tool industry! See for yourself how it will save you money, muscle and man-hours! See for yourself why experienced tool buyers hail it as a real champion! Or, write for full details to: THE BLACK & DECKER MFG. CO., 664 Pennsylvania Ave., Towson 4, Md.


MOTOR
EXCHANGE
SERVICE
For Westinghouse
single-phase and three-phase
1 to 20 hp
frame 203 to 326 a-c motors
WESTINGHOUSE
DO NOT
LUBRICATE

Production Insurance

KEEP PRODUCTION MOVING with industry's broadest motor exchange service

Here is real production insurance . . . a method to keep your production at a record-smashing peak. It is the Life-Line motor exchange plan—the broadest in industry today. All standard a-c motors, 1 to 20 hp, single-phase through 7½ hp, squirrel-cage three-phase, frames 203-326 are included.

Here's how it works. If a motor fails during warranty period, you can exchange it for a motor of identical rating—*free*. Beyond warranty, the exchange price is low and *not* dependent on the time in service—one year, five or ten—only the condition of the motor.

120 Westinghouse exchange points assure you rush motor replacement service anywhere in the United States. Replacement motors, covered by the plan are normally in stock, ready to be speeded to you at any time.

This means you can save the time of making repairs . . . of waiting for repair shops. And it means you need carry a smaller emergency stock of motors. It means put all your horsepower to work. It means you can count on Westinghouse for repairs when needed.

This service is one more advantage you get with Life-Line motors. Add this to steel frame construction . . . pre-lubricated bearings and you'll see why Life-Line is the best motor production insurance you can get.

Complete details? Ask for a copy of Life-Line Exchange Service (SM-5243). Your Westinghouse representative has one for you, or write Westinghouse Electric Corp., P. O. Box 868, Pittsburgh 30, Penna.

J-21632

YOU CAN BE SURE.. IF IT'S

Westinghouse

Life-Line

MOTORS and CONTROLS

How Can You Use Fullergript?

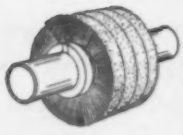
Here's What Others Are Doing



GRINDER SHROUD
devised from Fullergript brush strip by maker of vertical die and surface grinder . . . concentrates coolant and protects operator from spray.



REMOVING GLOSS
from molded counter top accomplished by buffing cylinder with widely-spaced but spiralled Fullergript brush strips. Engineering trick was to work out angle of spiral giving an even buff.



WATER DEPOSIT
flicked away automatically from tops of cans coming from cooling machine in cannery. Hand labor eliminated.



CREEPING PREVENTED
by printing press manufacturer who utilized Fullergript formed as 2" discs, which hold paper against stop fingers.



NEW ANSWERS
to puzzling problems can often be found with the brushing action of Fullergript strips. You are introduced to new vistas of mechanical possibilities. And our engineers will work with you. Tell us how you can use it — we're good listeners.

FULLER BRUSH
FULLERGRIPT
At home... in business, too



THE FULLER BRUSH COMPANY • INDUSTRIAL DIVISION • 3554 MAIN STREET • HARTFORD 2, CONN.

Bristol, Conn.—The Bristol Brass Corporation. John Monahan has been appointed district manager-New England, a newly-created post. He was formerly sales representative for Connecticut.

Appleton, Wis.—Miller Electric Manufacturing Company. David R. Warner has been appointed sales manager. He was formerly district sales manager in the Denver, Colo. area.

Los Angeles, Calif.—Ward Leonard Electric Company. Office and warehouse here have been moved to new, larger headquarters at 1605 E. Olympic Boulevard. The office is managed by H. S. Eales.

San Francisco, Calif.—Shell Chemical Corporation. G. W. Huldrum, Jr., has



G. W. Huldrum

been appointed sales manager of the western division. He has been assistant sales manager since 1951.

Toledo, O.—De Vilbiss Company. Henry M. Kidd has been appointed vice-president and sales manager of the company's spray painting equipment division. He has been associated with De Vilbiss for 18 years.

Pittsburgh, Pa.—National Electric Products Corporation. Vincent P. Oatis, Jr. has been named industrial sales manager in full charge of sales and service on busway, Nepcoduct, wide range connectors, Planeduct, industrial Underfloorduct, terminal blocks and junction boxes. William A. Mallory has been named assistant industrial sales manager in charge of busway and related products. George E. Placier, Jr., has been appointed assistant industrial sales manager in charge of Nepcoduct and Planeduct.

New York, N. Y.—Pipe Machinery Company (Gage Division). K. Herbert Link has been named sales representative in the New York area.

Minneapolis, Minn.—Monsanto Chemical Company. A Twin Cities sales office has been established for the Minneapolis-St. Paul territory in the Foshay Tower Building here. Arthur A. Hibbeler, assistant branch manager for Monsanto's organic chemicals division, will be in charge of the new office, a branch of the company's Chicago district office.

(*Please turn to page 324*)



SuVeneer® CLAD METALS

SuVeneer Clad Metals give you *solid copper or brass surfaces* on a core of strip steel. The product is bonded inseparably, *stronger* than either copper or brass alone, providing every advantage of the dense, solid, impermeable non-ferrous metals on one or both sides of the steel.

Use SuVeneer Clad Metals as you would any coiled strip—improve your products, and save money! • Complete details on request.

Superior Steel
CORPORATION
CARNEGIE, PENNSYLVANIA

it calls for expert handling, Harry, so be sure to

SPECIFY P·I·E



Modern Motor Freight minimizes all your problems—assures safe, dependable delivery—"door-to-door." Whether you are on our cross-country line between California and the Midwest, or reached through off-line connecting carriers, your supplier knows you're on the beam when you

"Specify P·I·E"!



P·I·E

PACIFIC INTERMOUNTAIN EXPRESS

Chicago · St. Louis · Kansas City · Wichita · Denver · Ogden · Elko · Reno · Ely · Pocatello · Salt Lake City · San Francisco · Los Angeles · Sacramento · Oakland · Stockton

Sales Offices: Washington, D. C.

GENERAL OFFICES: 299 ADELINE STREET OAKLAND 20, CALIFORNIA

New York, N. Y.—E. W. Bliss Company. Direct representation has been established in New York City and surrounding areas with opening of a new branch office at 50 Church Street.

Pittsburgh, Pa.—Rockwell Manufacturing Company. M. D. Gilbert has been appointed Kansas City district sales manager, and Roy R. Bush, Tulsa district sales manager.

Brooklyn, N. Y.—Polytechnic Research and Development Company, Inc. Harry C. Nelson has been appointed manager of instrument sales.

Glenbrook, Conn.—Laminated Shim Company. Michael E. Errico has been appointed sales engineer, covering New England.

St. Louis, Mo.—Wagner Electric Corporation. W. S. Rigby has been appointed assistant manager of the automotive original equipment sales department.

Buffalo, N. Y.—Winsmith-Buffalo. Ralph Domes has joined the sales-engineering staff. He will head the new Syracuse office when it is established. Meanwhile, he will work out of the Buffalo office.

Detroit, Mich.—American Charcoal Co. C. R. Allan has been named national and ordnance sales director. He was formerly with Ford Motor Company as purchasing agent for maintenance, repair and operating supplies.

(*Please turn to page* 328)

POINT-OF-SALE COPELAND DISPLAYS

STIMULATE PURCHASES

Distinctive displays in quantity since 1935:

- **wood**
- **metal**
- **plastic**
- **motion**

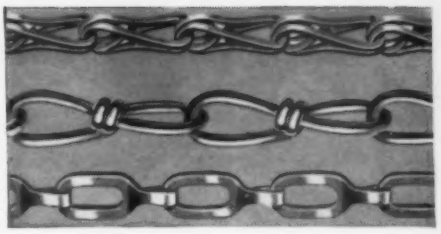
CALL

CO 5-5621

COPELAND DISPLAYS, Inc.

537 W. 53 St.

New York, N. Y.



You can depend on

HODELL

for top-quality

Chain

...or special

Chain Assemblies

made to your specifications

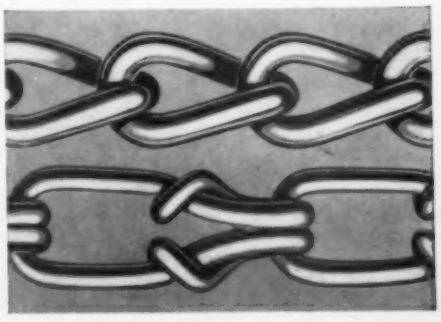
For dependability, quality and long life, you can always depend on Hodell—the name for dependable chain since 1886. In addition to all standard types and sizes, we manufacture many formed wire specialties and special chain assemblies. We'll welcome an opportunity to quote on your specifications at any time.

Write for our industrial catalog, giving complete information on the Hodell line.

HODELL CHAIN COMPANY

Cleveland 3, Ohio

Div. of The National Screw & Mfg. Co.



POWER plus ACCURACY



Giant presses used by automobile manufacturers shape heavy gauge sheet metal into entire body sections with effortless accuracy.



The Plumb Ball Pein Hammer is engineered to strike with power and precision. Perfect balance, with weight scientifically centered behind the pounding face, adds extra force to the swing, reduces fatigue.

The cone shaped pein spreads rivets evenly without mashing them. The Plumb Ball Pein head is forged from special analysis steel. Each handle, made from second growth hickory, is tested for strength. With a Plumb Ball Pein jobs go faster and more accurately.

Fayette R. Plumb, Inc., Philadelphia 37, Pa.

TESTED U. S. A. PLUMB HICKORY

Quality Comes FIRST

PLUMB

is FIRST in Quality

The black head with the red handle—exclusively PLUMB

HAMMERS
HATCHETS
AXES
FILES

PLUMB®

Advertisement

ELECTROMET Data Sheet

Published by Electro Metallurgical Company, A Division of Union Carbide and Carbon Corporation, 30 East 42nd Street, New York 17, N. Y. In Canada: Electro Metallurgical Company of Canada, Limited, Welland, Ontario.

ALLOYS FOR THE STEEL, IRON, AND NON-FERROUS INDUSTRIES

PRODUCT*	NOMINAL COMPOSITION	USES
BORON ALLOYS		
Ferroboron		
Min. 10.00% Boron Grade	Silicon.....max. 1.50% Aluminum.....max. 0.50% Carbon.....max. 1.50%	Increases hardenability of steel; also, for additions to malleable iron and aluminum alloys.
Min. 17.50% Boron Grade	Silicon.....max. 1.50% Aluminum....max. 0.50% Carbon.....max. 0.50%	
Manganese-Boron	Boron.....min. 17.50% Manganese...approx. 75% Silicon.....max. 1.50% Carbon.....max. 3% Iron.....max. 5%	Used to cleanse and deoxidize non-ferrous alloys.
Nickel-Boron	Boron.....15 to 18% Silicon.....max. 1.50% Aluminum.....max. 1.00% Carbon.....max. 0.50% Iron.....max. 3.00% Nickel.....Balance	Special boron alloy used principally for deoxidizing nickel and its alloys.
Boron Carbide	Boron.....45 to 50% Carbon .....45 to 50%	Deoxidizer for non-ferrous alloys.
Calcium Boride	Boron.....38 to 42% Calcium.....27 to 32% Carbon.....15 to 20%	Welding rod coating.
SILCAZ Alloy	Boron.....0.55 to 0.75% Silicon.....35 to 40% Calcium.....9 to 11% Aluminum.....6 to 8% Titanium.....9 to 11% Zirconium.....3 to 5%	A complex boron addition agent for increasing the hardenability of steel.
CALCIUM ALLOYS		
Calcium-Silicon	Calcium.....30 to 33% Silicon.....60 to 65% Iron.....1.50 to 3%	Deoxidizer for quality ingot steel. Also used in high-tensile gray irons.
Calcium-Manganese-Silicon	Calcium.....16 to 20% Manganese.....14 to 18% Silicon.....53 to 59%	A complex deoxidizer used widely in production of steel castings.
Calcium Metal		
Regular Grade	Calcium.....98% (Cylinders, Slabs, Cut Pieces, or Turnings)	Reducing agent in metallurgical applications, deoxidizer and degasifier for non-ferrous metals, particularly magnesium.
Distilled Grade	Calcium...approx. 99.90% (Irregular pieces from pea size to 14 in. lumps)	For special applications requiring calcium of very high purity.
CHROMIUM ALLOYS		
Low-Carbon Ferrochrome	Chromium.....67 to 71% Silicon.....0.30 to 1.00% Carbon (10 Grades) max. 0.03 to max. 2.00%	Production of stainless steels and high-temperature alloys requiring low carbon content.
High-Carbon Ferrochrome		
Max. 4.50, 5.00, or 6.00% Carbon Grade	Chromium.....67 to 70% Silicon..... 1 to 2%	For production of engineering alloy steels and other alloy steels of moderate chromium content.
Max. 7.00% Carbon Grade	Chromium.....66 to 69% Silicon..... 1 to 3%	
Min. 7.00% Carbon Grade	Chromium.....65 to 68% Silicon..... 1 to 3%	
Nitrogen-Bearing Low-Carbon Ferrochrome	Chromium.....67 to 71% Silicon.....0.30 to 1.00% Carbon.....max. 0.10% Nitrogen....approx. 0.75%	For additions of nitrogen to improve properties of high-chromium steels.
"SM" Ferrochrome	Chromium.....60 to 65% Silicon ..... 4 to 6% Carbon..... 4 to 6% Manganese..... 4 to 6%	A high-solubility chromium addition for steel or iron in either furnace or ladle.

PRODUCT*	NOMINAL COMPOSITION	USES
CHROMIUM ALLOYS cont.		
Foundry Ferrochrome		
High-Carbon Grade	Chromium.....62 to 66% Silicon..... 7 to 10% Carbon..... 5 to 7%	Developed especially for high-solubility ladle additions of chromium to improve composition and properties of cast iron.
Low-Carbon Grade	Chromium.....50 to 54% Silicon.....28 to 32% Carbon.....max. 1.25%	
Chromium Metal		
Low-Carbon Grades	Chromium.....min. 97% Carbon .....max. 0.10% and 0.50% Iron.....max. 1%	Production of wide variety of non-ferrous chromium-bearing alloys, including electrical resistance alloys and high-temperature alloys.
High-Carbon Grade	Chromium.....87 to 90% Carbon..... 9 to 11% Iron.....max. 1.25%	
"EM" Ferrochrome-Silicon		
No. 1 Grade	Chromium.....39 to 41% Silicon.....42 to 46% Carbon.....max. 0.05%	In production of stainless steels, these alloys are used to reduce metal oxides from the slag back into bath.
No. 2 Grade	Chromium.....36 to 39% Silicon.....36 to 39% Carbon.....max. 0.05% Aluminum..... 7 to 9%	
"EM" Ferrosilicon-Chrome	Chromium.....50 to 54% Silicon.....28 to 32% Carbon.....max. 1.25%	For adding chromium and silicon to steels containing up to 1 or 2 per cent chromium.
"EM" Chromium Briquets (Hexagonal Shape)	Chromium.....2 lb. Total Weight.....3⅛ lb.	For adding chromium to cast iron in the cupola.
COLUMBIUM ALLOYS		
Ferrocolumbium	Columbium.....50 to 60% Silicon.....max. 8% Carbon.....max. 0.40%	Stabilizer in austenitic chromium-nickel stainless steels. Also constituent of high-temperature alloys.
Ferrotantalum-Columbium	Columbium...approx. 40% Tantalum.....approx. 20% Cb+Ta .....min. 60% Silicon.....4 to 6% Carbon.....max. 0.30%	Another stabilizer, used to supplement ferrocolumbium, in austenitic chromium-nickel stainless steels. Also used in high-temperature alloys.
MANGANESE ALLOYS		
Standard Ferromanganese		
Regular Grade	Manganese.....78 to 82% Carbon.....approx. 7% Silicon.....max. 1%	Most common means of adding manganese to steel for both alloying and deoxidizing purposes. Also for counteracting sulphur in steel and cast iron.
Low-Phosphorus Grade	Manganese.....78 to 82% Carbon.....max. 7% Silicon.....max. 2% Phosphorus...max. 0.10%	
Low-Carbon Ferromanganese		
Low-Phosphorus Grade	Manganese.....min. 90% Carbon.....max. 0.07% Phosphorus...max. 0.06%	Additions of manganese to steels of low-carbon specification, particularly stainless steels of 18 per cent chromium, 8 per cent nickel type.
Regular Grades	Manganese.....85 to 90% Carbon ....max. 0.07, 0.11 to 0.15, 0.30, or 0.50%	
Regular Grade (High-Silicon)	Manganese.....80 to 85% Carbon.....max. 0.75% Silicon..... 5 to 7%	
Medium-Carbon Ferromanganese	Manganese.....80 to 85% Carbon.....max. 1.25 to 1.50%	For making low- and medium-carbon manganese steel and Hadfield steel.
Silicomanganese		
Max. 1.50% Carbon Grade	Manganese.....65 to 68% Silicon.....18 to 20%	A versatile alloy useful as furnace block, deoxidizer, and also for making manganese additions to steel in the ladle or in the furnace.
Max. 2.00% Carbon Grade	Manganese.....65 to 68% Silicon.....15 to 17.50%	
Max. 3.00% Carbon Grade	Manganese.....65 to 68% Silicon.....12 to 14.50%	

*All of the alloys and metals listed are produced in the usual lump, crushed, or ground sizes, except where other special forms are indicated.

PRODUCT*	NOMINAL COMPOSITION	USES
MANGANESE ALLOYS cont.		
Low-Iron Ferromanganese	Manganese.....85 to 90% Carbon.....approx. 7.00% Silicon.....max. 3% Iron.....max. 2%	For high manganese additions to certain non-ferrous alloys, particularly aluminum.
Manganese Metal	Manganese.....min. 96% Carbon.....max. 0.20% Silicon.....max. 1.00% Iron.....max. 2.50%	Used both as deoxidizer and alloy in production of numerous non-ferrous metals and alloys.
"EM" Silico-manganese Briquets (Square Shape)	Manganese.....2 lb. Silicon.....½ lb. Total Weight.....3½ lb.	For adding manganese (with silicon) to cast iron in the cupola.
"EM" Ferro-manganese Briquets (Oblong Shape)	Manganese.....2 lb. Total Weight.....3 lb.	For adding manganese (without silicon) to cast iron in the cupola.
SILICON ALLOYS		
50% Ferrosilicon		
Regular Grade	Silicon.....47 to 51%	Deoxidizer for most grades of killed or semi-killed steel. Blocking grade specially sized for maximum efficiency.
Blocking Grade	Silicon.....47 to 51%	
Low-Aluminum Grade	Silicon.....47 to 51% Aluminum.....max. 0.40%	
65% Ferrosilicon		
Low-Aluminum Grade	Silicon....61.50 to 66.50% Aluminum.....max. 0.50%	Mainly for production of electrical sheet steel.
75% Ferrosilicon		
Regular Grade	Silicon.....73 to 78%	Deoxidizer and alloy for production of high-silicon spring and electrical sheet steel. Graphitizing inoculant for cast iron.
Low-Aluminum Grade	Silicon.....73 to 78% Aluminum.....max. 0.50%	
85% Ferrosilicon		
Regular Grade	Silicon.....83 to 88%	Enables melter to add higher percentages of silicon without chilling metal in ladle. Graphitizing inoculant for cast iron.
Low-Aluminum Grade	Silicon.....83 to 88% Aluminum.....max. 0.50%	
90% Ferrosilicon		
Regular Grade	Silicon.....92 to 95%	Permits large additions of silicon without harmful chilling effect.
Low-Aluminum Grade	Silicon.....92 to 95% Aluminum.....max. 0.50%	
Silicon Metal		
Regular Grade	Silicon.....min. 97 or 96% Iron.....max. 1 or 2%	Additions of silicon to non-ferrous metals, particularly aluminum and copper, to improve physical properties.
Purified Grade	Silicon....99.70 to 99.90% Iron.....005 to .015%	For applications in non-ferrous industry requiring silicon of high purity.
Low-Calcium Grade	Silicon.....min. 97% Iron.....max. 1% Calcium.....max. 0.10%	For the production of high-silicon aluminum alloys where calcium is detrimental.
Low-Aluminum Grade	Silicon.....min. 98% Iron.....max. 1% Aluminum.....max. 0.10%	For the production of silicon-copper alloys where aluminum is detrimental.
"SMZ" Alloy	Silicon.....60 to 65% Manganese..... 5 to 7% Zirconium..... 5 to 7%	Particularly strong graphitizing inoculant used in making ladle additions to cast iron.
Special Graphitizer	Ferrosilicon Compound	Acts as both deoxidizer and graphitizer in cast iron. Useful in controlling chilling tendencies.
Magnesium-Ferrosilicon	Silicon.....approx. 46% Magnesium..approx. 8.5%	For ladle addition to cast iron to obtain special properties.
Barium-Silicon	Barium.....40 to 50% Silicon.....45 to 55%	For deoxidation of non-ferrous alloys.
"EM" Silicon Briquets (Cylindrical Shape)		
Large Size	Silicon.....2 lb. Total Weight.....5 lb.	For adding silicon to cast iron in the cupola.
Small Size	Silicon.....1 lb. Total Weight.....2½ lb.	

"Electromet," "EM," "Silcaz," "SM," and "SMZ," are trade-marks of Union Carbide and Carbon Corporation.

PRODUCT*	NOMINAL COMPOSITION	USES
TITANIUM ALLOYS		
Ferrotitanium	Titanium.....27 to 32% Carbon.....max. 0.10%	For adding titanium to stabilized austenitic chromium-nickel stainless steels and to high-temperature metals.
Silicon-Titanium	Titanium.....40 to 50% Silicon.....45 to 50% Iron.....max. 3%	For additions of titanium to steels or non-ferrous alloys.
Manganese-Nickel-Titanium	Titanium.....43 to 48% Nickel.....approx. 25% Manganese.....max. 8% Aluminum.....max. 18% Iron.....max. 5%	Deoxidization of nickel alloys.
TUNGSTEN ALLOYS		
Ferrotungsten	Conforming to A.S.T.M. Spec. A 144-39	For production of tool and die steels; also high-temperature alloys.
Tungsten Metal Powder		Production of tungsten steels and cast tungsten carbide.
Melting Grade	Tungsten.....min. 98.80% Total Carbon..max. 0.25%	
Calcium Tungstate Nuggets	Tungstic Oxide..68 to 72%	For production of tool steels and high-temperature alloys by direct reduction.
VANADIUM ALLOYS		
Ferrovanadium	Vanadium.....50 to 55% Carbon....max. 0.20, 0.50, or 3.00% Silicon....max. 1.50, 2.00, or 8%	Production of tool and engineering steels, high-strength structural steels, non-aging rimming steels, and wear-resistant irons.
Vanadium Oxide Fused	V_2O_5.....86 to 89% Na_2O.....approx. 10% CaO.....approx. 2%	For addition of vanadium to steel and for manufacturing catalysts.
Sodium Polyvanadate (Red Cake)	V_2O_5.....approx. 85% Na_2O.....approx. 9% CaO.....approx. 2% H_2O.....approx. 2.5%	For manufacture of vanadium compounds, including vanadium catalysts.
High-Purity Ammonium Metavanadate	V_2O_5.....approx. 99.50% NH_4VO_3.....min. 99%	
ZIRCONIUM ALLOYS		
12 to 15% Zirconium Alloy	Zirconium.....12 to 15% Silicon.....39 to 43% Carbon.....max. 0.20%	This zirconium alloy is a powerful deoxidizer. It also increases depth of hardening.
35 to 40% Zirconium Alloy	Zirconium.....35 to 40% Silicon.....47 to 52% Carbon.....max. 0.50%	Deoxidizer for fine grades of alloy steels. Used for adding larger amounts of zirconium.
Nickel-Zirconium	Zirconium.....25 to 30% Nickel.....40 to 50% Aluminum....approx. 15% Silicon.....max. 10% Iron.....max. 5%	Effective for deoxidizing and degasifying nickel and its alloys.

IF YOU HAVE A METALS PROBLEM

More than 50 different alloys and metals are produced by ELECTROMET in hundreds of varying compositions and sizes. If you need help in selecting the proper alloys, or have some specific metallurgical problem, be sure to consult one of ELECTROMET'S specially trained metallurgists and engineers. Address your inquiries to one of the offices listed below.

Birmingham 3, Ala.....Brown-Marx Building
Chicago 1, Ill.....230 N. Michigan Avenue
Cleveland 14, Ohio.....Union Commerce Building
Detroit 2, Mich.....6-240 General Motors Building
Los Angeles 58, Calif.....2770 Leonis Boulevard
New York 17, N. Y.....30 East 42nd Street
Pittsburgh 22, Pa.....2207 Oliver Building
San Francisco 6, Calif.....22 Battery Street
In Canada: Electro Metallurgical Company of Canada Limited, Welland, Ontario

You Need Burlap! We Have it!

and here are 4 reasons why Bemis is Your Best Burlap Source . . .



1 You Benefit from Our Large Operations

Bemis is the largest burlap importer. Whatever the supply situation, Bemis customers are in the most favorable position.

2 You Benefit from Our Knowledge of Quality of Burlap

For many years, producers and users alike have accepted Bemis' grading of Indian burlap as the standard for the industry.

3 You Benefit from Our Knowledge of the Burlap Market

We follow the market daily in our regular operations.

4 You Benefit from Bemis' Large Facilities

Sixteen plants and seventeen additional sales offices, all strategically located, assure you a dependable source of supply.

Bemis is headquarters for all grades and weights of burlap . . . including widely-used 10-oz., and the popular, special-finish Angus, which only Bemis imports.

BEMIS BRO BAG COMPANY

Bemis

Baltimore • Boise • Boston • Brooklyn • Buffalo • Chicago
Charlotte • Cleveland • Denver • Detroit • Indianapolis
Houston • Jacksonville, Fla. • Kansas City • Los Angeles
Louisville • Minneapolis • New Orleans • New York City
Memphis • Norfolk • Oklahoma City • Omaha • Phoenix
Philadelphia • Pittsburgh • Salt Lake City • San Francisco
St. Louis • Salina • Seattle • Vancouver, Wash. • Wichita

Kansas City, Mo.—Toledo Pipe Threading Machine Company. James L. Emch has been appointed sales representative, with headquarters here. He will cover surrounding states.

McKeesport, Pa.—A. B. Murray Co., Inc. Richard S. Jones, formerly a sales representative, has been named manager of stainless steel sales. C. J. Rice succeeds him as sale representative in central and western Pennsylvania.

Waterbury, Conn.—The American Brass Company. Justice Lockwood, formerly manager of the Buffalo, N. Y. branch, has been appointed vice-president in



Justice Lockwood

charge of sales for the entire company, with headquarters at the main office here. The post had been vacant since the retirement of Elton S. Wayland in 1950.

New York, N. Y.—United States Rubber Company. Harry M. Frecker has been appointed manager of commodity sales for the mechanical goods division of the company.

INDUSTRIAL DEVELOPMENTS

Ceco Steel Products Corporation, Chicago, Ill., manufacturer of metal building products, has purchased the business of Sterling Windows, Inc., New York, N. Y. and New Castle, Ind.

ACCO Casting Division, American Chain & Cable Company, Reading, Pa., is the new name for the division of the company that will be responsible for sales of steel, gray iron and malleable castings. This represents a combination of the Reading Steel Casting Division and the Malleable Iron Department of American Chain Division, with Lloyd W. Hopkins continuing as sales manager.

Columbia-Southern Chemical Corporation will be in full-scale commercial production of two new products, Hydrotan and Hydrocarb, within a few months at its Corpus Christi, Tex. plant. The products are designed for treatment of oil well drilling muds.

(*Please turn to page* 332)



That's All the Cleaning an Allis-Chalmers TEFC Motor Ever Needs

MAINTENANCE COSTS ARE LOW for users of Allis-Chalmers Totally-Enclosed, Fan-Cooled Motors. They are easy to clean because even the stickiest dirt can be wiped or blown off without dismantling the motor or even stopping it. They seldom require cleaning because cooling air flows over the *outside* of the motor. There are no external concealed air passages to clog up and cause over-heating. You get better operational continuity, lower maintenance.

Bearings Save Maintenance, Too

Double-shielded ball bearings require no regular maintenance under most normal operating conditions. Yet if difficult service makes re-lubrication desirable, it can be done without dismantling the motor or bearings. Rigid cast iron frame and stiff end brackets maintain bearing alignment . . . assure maximum bearing life.

A-3639

Texrope and *Vari-Pitch* are Allis-Chalmers Trademarks.

ALLIS-CHALMERS

Get The Full Story Now

Your Allis-Chalmers Authorized Dealer or District Office can give you complete information on Allis-Chalmers Totally-Enclosed, Fan-Cooled Motors and how they can save you money. Call one of them today or write Allis-Chalmers, Milwaukee 1, Wisconsin. Ask for Bulletin 51B7225.

Sold . . Applied . . Serviced .

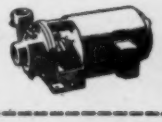
by Allis-Chalmers Authorized Dealers, Certified Service Shops and Sales Offices throughout the country.



CONTROL — Manual, magnetic and combination starters; push button stations and components for complete control systems.

TEXROPE — Belts in all sizes and sections, standard and *Vari-Pitch* sheaves, speed changers.





PUMPS — Integral motor and coupled types from ¾ in. to 72 in. discharge and up.



Write for Bulletin FA-103 for complete information on H-VW-M Full Automatic Conveyors.

Your H-VW-M combination—of the most modern testing and development laboratory—of over 80 years experience in every phase of plating and polishing—of a complete equipment, process and supply line for every need.

HANSON-VAN WINKLE-MUNNING CO., MATAWAN, N. J.
PLANTS AT: MATAWAN, N. J. • ANDERSON, INDIANA
SALES OFFICES: ANDERSON • BOSTON • CHICAGO • CLEVELAND
DAYTON • DETROIT • GRAND RAPIDS • MATAWAN • MILWAUKEE
NEW HAVEN • NEW YORK • PHILADELPHIA • PITTSBURGH
ROCHESTER • SPRINGFIELD (MASS.) • STRATFORD (CONN.) • UTICA

H·VW·M

INDUSTRY'S WORKSHOP FOR THE FINEST IN PLATING AND POLISHING PROCESSES • EQUIPMENT • SUPPLIES

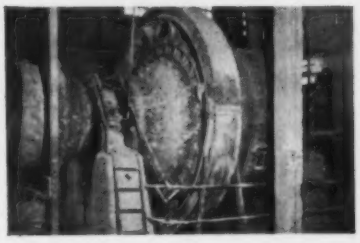
IN ALL INDUSTRIES

LUBRIPLATE LUBRICANTS

EXCEL IN REDUCING FRICTION, WEAR, UPKEEP-COSTS AND POWER-CONSUMPTION...WITH BETTER MACHINE PERFORMANCE

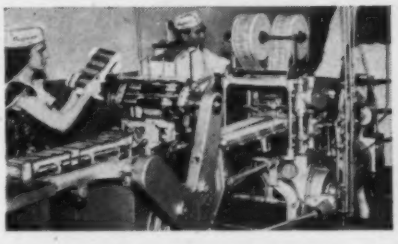
"LUBRIPLATE NO. 630-AA is practically a universal lubricant"

–so writes the SPOKANE PORTLAND CEMENT CO. of Irwin, Wash.



"With the introduction of LUBRIPLATE No. 630-AA, we were able to reduce our requirements so that today we are satisfying all our needs for solid type lubricants with only two LUBRIPLATE Products. LUBRIPLATE No. 630-AA might almost be considered a Universal Lubricant. Furthermore, it has effected a marked savings in lubricants and labor."

Frank D. Neill
General Superintendent



LYNCH CORPORATION of Toledo, Ohio, a leading manufacturer of packaging machinery

says:

"THIS LUBRICANT REDUCES SERVICE CALLS"

"The majority of our machines are used in places where it is necessary to wash them with steam and hot water after each day's use. This naturally would remove any ordinary lubricant and trouble would develop if the machines were not immediately relubricated. With LUBRIPLATE there is always a film left on the machine after washing. Our Service Engineers can readily spot machines that have had other than LUBRIPLATE Lubrication, as these machines do not give the service they should."

"THIS LUBRICANT SAVES 7 TIMES ITS COST IN PRODUCING SHOES" – says WOLVERINE SHOE AND TANNING CORP.



"You recommended to us LUBRIPLATE No. 100 for lubricating the chain drive on our paddle wheels which turn the hides immersed in a solution in concrete vats. The chain during use is always soaked in a solution that is sometimes acid and sometimes caustic. Up to that time we had not found any lubricant that would stay on the chains for any appreciable time. The average life of a chain was approximately one year. Since we have applied LUBRIPLATE to these chains every two weeks for two years, not one chain has required replacement, and they are still going strong.

"At this time it appears that for every dollar we have invested in LUBRIPLATE, we have saved seven dollars in chains."



REGARDLESS OF TYPE AND SIZE OF YOUR MACHINERY LUBRIPLATE LUBRICANTS IMPROVE OPERATION AND GREATLY REDUCE MAINTENANCE COSTS.

Write today for LUBRIPLATE Data Book No. 1-52

LUBRIPLATE DIVISION
Fiske Brothers Refining Co.
Newark 5, N. J. Toledo 5, Ohio

DEALERS FROM COAST TO COAST—SEE YOUR CLASSIFIED TELEPHONE BOOK



Barber-Colman Company, Rockford, Ill., will purchase the principal assets of Wheelco Instruments Company, Chicago, Ill. Present plans are to continue current operations in Chicago until such time as manufacturing facilities can be gradually transferred to Rockford with little interruption in shipments.

Round Seattle Chain Corp., Seattle, Wash., is the new name of the former Seattle Chain & Mfg. Co. It is one of the Round Chain Companies.

Olin Industries, Inc., has established advance research and development laboratories at New Haven, Conn. It was erroneously reported here last month that the laboratories are located in Pisgah Forest, N. C.

Worthington Corporation is the new name of the Worthington Pump and Machinery Corporation. The company, now more than a century old, has over the years extended its manufacturing activities into many other fields than pumps, so that today, with few exceptions, every industrial and commercial enterprise is a potential user of one or more of the many items of its equipment. No corporation policies or practices will be affected in any way by the name change.

Bulldog Electric Products Company has acquired a new plant with 53,000 square feet of space in Detroit. It will be devoted to an increase in the production of DF50 switchboards and cubicles, panelboard boxes and fronts and special panelboards.

N. T. Gates Company, Philadelphia, Pa., is a new firm of packaging designers, consultants and suppliers, who will furnish quality packaging material, paper products and other specialties. It is headed by N. T. Gates, for 15 years director of the packaging division of E. W. Twitchell, Inc.

Cooper Hewitt Electric Company, Hoboken, N. J., has established a special products division for the manufacture and sale of germicidal lamps, photo chemical equipment, ultra-violet sterilization products, analytical lamps, black light lamps, and quartz work in all forms.

Robert Gair Company, Inc., New York, N. Y., has acquired the American Coating Mills Division of Owens-Illinois Glass Company. The business will be carried on by American Coating Mills Corporation, a new wholly owned Gair Subsidiary, with principal offices in Chicago, Ill.

Titanium Company of America is a newly-formed, wholly owned subsidiary of Christiansen Corporation, Chicago, Ill., producer of aluminum and magnesium alloy ingot and other products for the foundry. The new corporation plans the construction of facilities for the manufacture of wrought products for industrial and military markets from the new metal.

(*Please turn to page* 336)





PERFECTLY MATED! Only Phillips Drivers are perfectly mated to Phillips Screws. Look for the name Phillips on the shank.

Q. *How can they increase your sales?*

AMERICAN SCREW CO. • ATLANTIC SCREW WORKS, INC.
THE BLAKE & JOHNSON CO. • CAMCAR SCREW & MFG. CORP.
CENTRAL SCREW CO. • CONTINENTAL SCREW CO. • THE EAGLE LOCK CO.
ELCO TOOL AND SCREW CORP. • GREAT LAKES SCREW CORP.
THE H. M. HARPER CO. • THE LAMSON & SESSIONS CO.
NATIONAL LOCK CO. • THE NATIONAL SCREW & MFG. CO.
PARKER-KALON CORP. • PHEOLL MFG. CO.
ROCKFORD SCREW PRODUCTS CO. • SCOVILL MFG. CO.
SHAKEPROOF INC. • SOUTHERN SCREW COMPANY
THE SOUTHINGTON HDWE. MFG. CO. • STERLING BOLT CO.
STRONGHOLD SCREW PRODUCTS, INC. • WALES-BEECH CORP.

A. ***Through the Phillips Cross-Recessed-Head Screws that they manufacture.*** These famous fasteners are a mark of quality manufacture to your customers. Phillips Screws are nationally advertised in The SATURDAY EVENING POST as the clue to quality: X marks the spot. You'll find them a real sales-plus on your product. What's more, you save time, work, money with Phillips Wood, Machine, Tapping Screws or "Sems." They cut driving time up to 50%, set up tighter, add structural strength. With Phillips Screws you'll find production power driving practical, cut lost time due to accidents. Be sure to cash in on their many benefits.

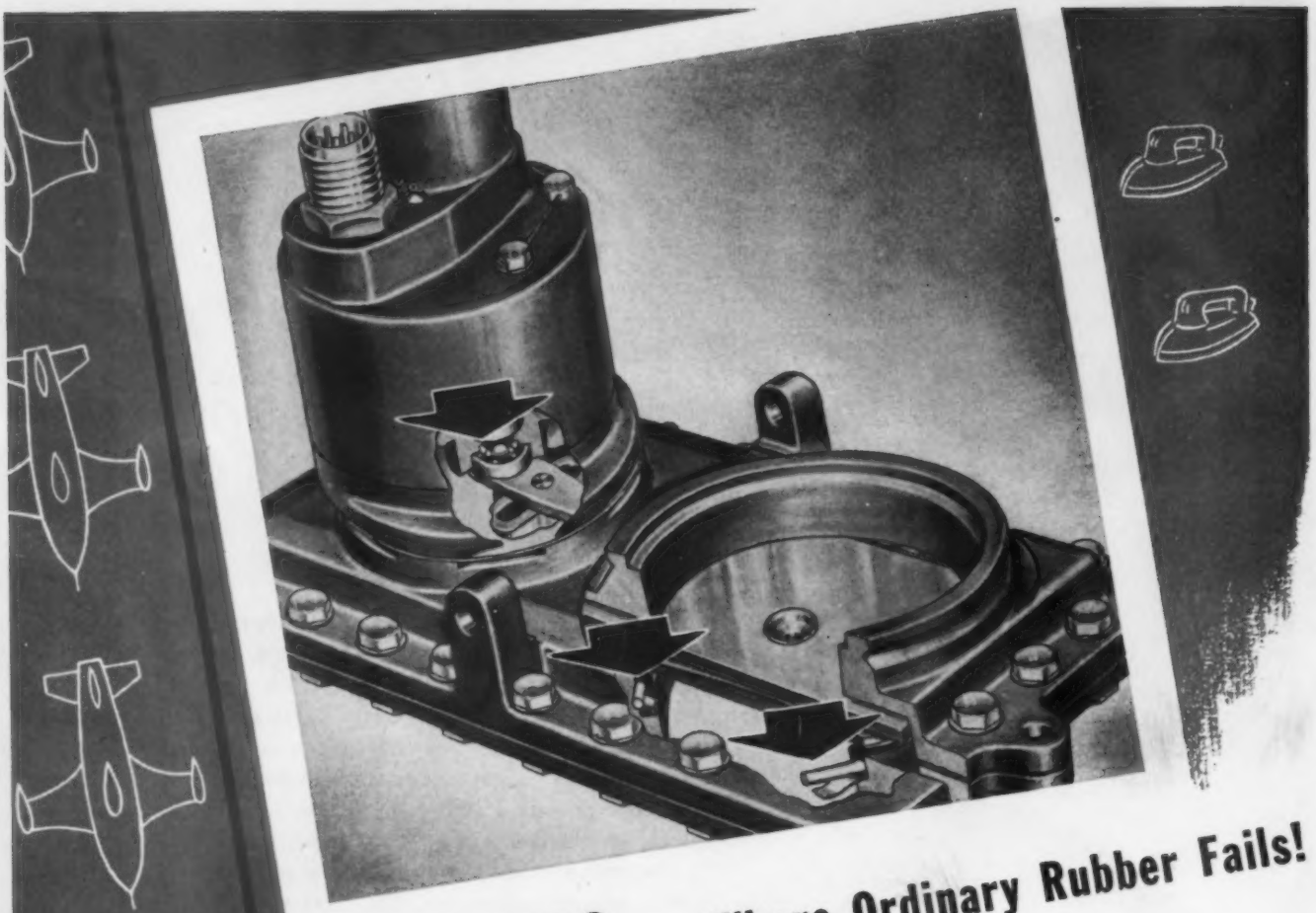
X marks the spot... the mark of extra quality

PHILLIPS *Cross-Recessed-Head* SCREWS

As Advertised in The Saturday Evening POST



THE FASTENERS OF TODAY . . . AND OF THE FUTURE



SILASTIC* WORKS... Where Ordinary Rubber Fails!

THESE hot air shut-off valves for jet planes must give positive control of hot air used for such vital functions as defrosting, anti-icing and the regulation of cabin air temperature and pressure. Silastic O-rings withstood 3000 cycles at 500°F. plus 2000 cycles at 600°F. plus 100 cycles at 700°F. before life-tests were discontinued.

At temperatures ranging from −100 to over 500°F., Silastic shows extraordinary resistance to compression set or to permanent deformation. Extreme temperatures, shock and vibration, hot oil, oxidation, corona, outdoor weathering and the mere passage of time have little or no effect on the properties of Silastic.

Silastic is, therefore, the best resilient gasketing material available for hundreds of applications ranging from seals for domestic steam irons to O-rings and gaskets for cylinder liners, water ports and oil pans in diesel-electric locomotives. And Silastic R Tape is the only resilient insulating tape that will withstand Class H temperatures in electric motors, transformers and coils.

That's why design and production engineers specify Silastic for applications where other resilient materials are subject to rapid failure. They've found that, among rubberlike materials, nothing compares with Silastic for reliability, long life and low maintenance costs under tough service conditions.

For complete information, call our nearest office, or mail this coupon TODAY.

DOW CORNING CORPORATION
Dept. No. BC-17, Midland, Michigan

☐ Silastic Facts No. 10 on properties and performance.

☐ List of Silastic Fabricators.

Name _____

Title _____

Company _____

Address _____

City _____ Zone ___ State _____

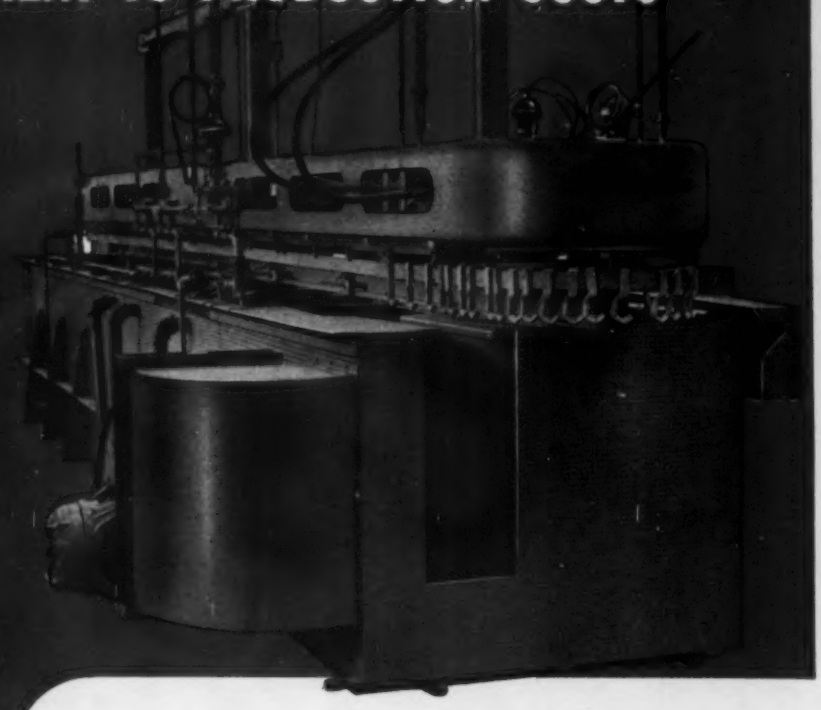
*T.M. REG. U.S. PAT. OFF.

DOW CORNING CORPORATION — DOW CORNING SILICONES — MIDLAND, MICHIGAN

ATLANTA
CHICAGO
CLEVELAND
DALLAS
NEW YORK
LOS ANGELES
WASHINGTON, D. C.

In Canada: Fiberglas Canada, Ltd., Toronto
In England: Midland Silicones Ltd., London

TORRINGTON FINDS *Udylite* MACHINE IS A TRIPLE-THREAT TO PRODUCTION COSTS



1

THREE PEOPLE DO WORK FORMERLY DONE BY EIGHT

2

MORE UNIFORM PLATING WITH REDUCED HANDLING

3

IMPROVED WORKING CONDITIONS FOR EMPLOYEES

● Here's graphic proof that Udylite can show you the way to better plating at lower cost. The Torrington Manufacturing Co., Torrington, Conn., has realized all these benefits with a Udylite Full Automatic Plating Machine in their Air Impeller Division plant. The machine is used in processing blower wheels for use in cooling military electronic equipment.

There are countless other ways that Udylite Plating machines pay their way, in addition to the ones above. For example, their compactness requires less floor space; their rugged construction and clean design result in negligible maintenance costs. They are extremely versatile and it is a simple matter to modify them for virtually any metal finishing process. Your Udylite Technical Man can give you dozens of instances where Udylite Machines are paying for themselves with increased production and lowered overhead. Call him today or write direct for complete information.

PIONEER OF A BETTER WAY IN PLATING

THE *Udylite* CORPORATION
DETROIT 11, MICHIGAN

Save TIME and LABOR

ON THESE HEAVY LIFTING JOBS . . .

- Moving Heavy Machinery and Equipment
- Rerailing Cars and Buggies
- Repairing Cranes
- Moving and Maintaining Buildings
- Pulling Gears and Pinions
- Handling Special Lifting, Lowering, Pushing, Pulling and Straightening Jobs



. . . with

DUFF-NORTON JACKS

When you specify jacks from the complete Duff-Norton line, you have your choice of a wide variety of dependable jacks that meet requirements of every industrial lifting and lowering job. Capacities range from 1 to 100 tons . . . raise heights from 4" to 72". For complete data, clip and mail the coupon below.

Fill in — Clip and Mail this Coupon Today!



The Duff-Norton Manufacturing Co.
Pittsburgh 30, Pa.

Please send me a copy of Catalog 203X, showing jacks for industrial lifting and lowering jobs.

☐ Have representative call.

Name and Title .....

Company .....

Address .....

City ..... Zone . . . State . . .

P-6

DUFF-NORTON JACKS
STRENGTH, SAFETY, DURABILITY
ESTABLISHED 1883

THE DUFF-NORTON MANUFACTURING CO.

The House that Jacks Built

Brown-Allen Chemicals, Inc., New York, N. Y. and Standard Piezo Company, Carlisle, Pa., have merged.

John A. Roebling's Sons Company, manufacturer of spring steel, wire rope, and other steel products, has begun construction of a $350,000 local warehouse and office building in Lakewood, a suburb of Cleveland, O.

Quaker Rubber Corporation, Division of H. K. Porter Company, Inc., Philadelphia, Pa., has completed and put into operation a new $275,000 wire braided hose department.

Aerol Company, Burbank, Calif., as part of a policy of planned expansion, has added four executives to assist in directing activities of Aerol and allied



Legler Paxton

companies. They are: Howard Neal, assistant to the president; Legler Paxton, assistant sales manager for special design and fabrication; Ted Callis, assistant to the west coast regional manager; and Milton Ross, engineer.

Hewitt-Robins Incorporated, New York, N. Y., has purchased the outstanding stock of Korb-Pettit Wire Fabrics and Iron Works, Inc., Philadelphia, Pa. Korb-Pettit is an important producer of woven wire fabric screen cloth.

Synthane Corporation announces that work is nearing completion on a new wing which will add 18,000 square feet of floor space to its plant at Oaks, Pa. The structure marks the eleventh expansion of the plant since the original factory was built in 1929.

Nashua Corporation is the new corporate name of the Nashua Gummed and Coated Paper Company, Nashua, N. H.

American Brake Shoe Company, New York, N. Y., has purchased the plant and property formerly owned by the Jumbo Steel Company in Azusa, Calif. The American Forge Division of Brake Shoe will use the plant to start a west coast forging operation.

National Electric Products Corporation, Pittsburgh, Pa., has established an electronics division. It will consist of two departments, television and radio, and radar.

(*Please turn to page* 338)

RIGHT IN YOUR OWN BACK YARD... BY WEST



DIEHARD'S CASE ISN'T SO UNUSUAL AFTER ALL! In all types of industry West representatives hear comments like "our situation is a special one" . . . "an insecticide is bound to impair the quality of our product" . . . and – stranger still – "we don't have any insect problem here!"

VAPOSECTOR was formulated for the realist who *has* an insect problem and wants to get rid of it – fast! It's fully three times as concentrated as the standard Grade AA spray . . . yet there's no danger of contamination or odor when used according to directions. Vaposector controls insects by "double penetration". When used with West spraying equipment, it becomes a "dry fog" that *penetrates* the most remote crevice . . . then *penetrates* the insect's outer covering for a permanent kill. There's no place to hide. No time to escape. A Vaposector demonstration has often revealed dead insects in numbers never thought possible – simply because they live and multiply in unseen cracks and crevices.

VAPOSECTOR gives more positive control value per gallon than any competitive product. It breaks down into such minute droplets when atomized with specially-designed West equipment, that only one ounce is needed to control flying insects in 1000 cubic feet . . . only two ounces for crawling insects. Compare it with an ordinary mill spray and you'll find Vaposector is over *four times as economical in use!* West can supply Vaposector as well as special mill sprays and fumigants . . . residual and contact insecticides . . . spraying equipment – a *complete insect control program* tailored to your exact needs!

WEST DISINFECTING Company

42-16 West Street
Long Island City 1, N. Y.

ASK FOR FURTHER INFORMATION ON HOW TO CONTROL INSECTS BY "DOUBLE-PENETRATION"

Dept. 2

☐ Please send Vaposector booklet.

Please send information on specially-designed permanent ☐, portable ☐, hand spraying ☐ equipment

Name_____ Title_____

Company_____

Address_____

City_____ Zone_____ State_____

If you have a

FACTORY PROBLEM



in production, assembly, packaging, shipping

You can save time and money with the proper use of



SEAMLESS F.O.S. INDUSTRIAL TAPE



For masking, holding, packaging, backing, hinging, protecting, reinforcing, identifying, splicing, sound-proofing, insulating, stenciling, bundling, sealing, binding

USE SEAMLESS F.O.S. *Industrial Tape*



Call or Wire

collect for authoritative advice and suggestions. Prices, catalogues, samples on request. Tape to meet govt. specifications. Wire details collect for 24-hour reply.

"Originators of Pressure-Sensitive Industrial Tape"

1877 75 1952 Anniversary

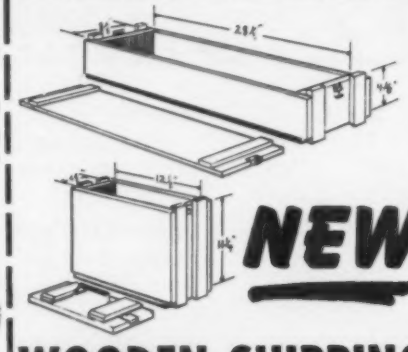
INDUSTRIAL TAPE DIVISION
THE SEAMLESS RUBBER COMPANY
NEW HAVEN 3, CONN., U. S. A.

Pittsburgh Plate Glass Company, itself one of the world's largest users of power-driven brushes, opened a new plant in Baltimore, Md., recently, for the manufacture of industrial brushes that will provide more research, development and production facilities for the company's expanding power-driven brush operations. The new structure provides additional manufacturing space of approximately 21,000 square feet for the company's Brush Division.

Ultrasonic Corporation, Cambridge, Mass., has acquired The Monitor Controller Company Braintree, Mass. Monitor is a manufacturer and distributor of motor control and switchgear equipment for industrial use. Ultrasonic will use Monitor's production facilities for the manufacture of certain sonic and electronic computer equipment, in addition to continued output of regular products.

William J. McSherry and Company, Chagrin Falls, O., has been formed as manufacturers' representative, to the wholesale hardware and industrial supply trades. It is headed by W. J. McSherry, formerly general sales manager of David Round and Son.

Westinghouse Electric Corporation's Central Station Department has been changed to Electric Utility Department. The change applies to all elements of the Apparatus Division that formerly used the term Central Station.



NEW

WOODEN SHIPPING BOXES

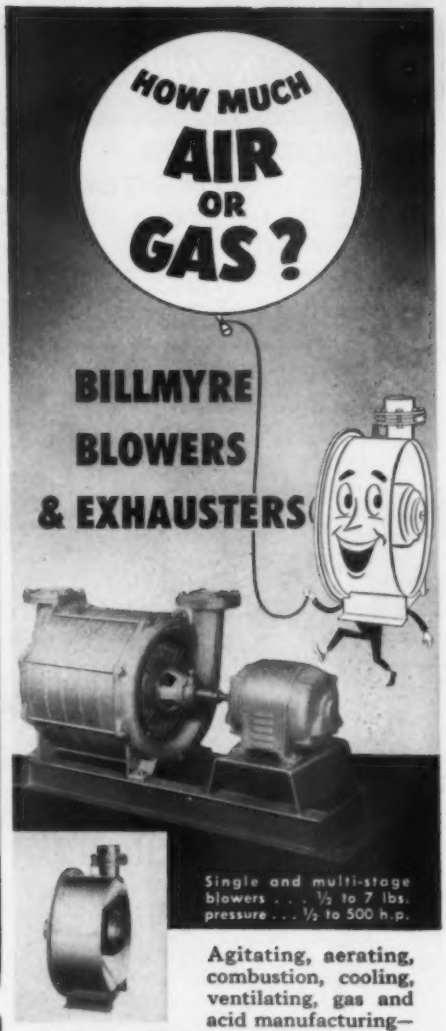
USES: Perfect for hardware, auto parts, screw machine parts, etc.

DIMENSIONS: (Inside) 28⅛" long, 8⅛" wide, 4⅛" deep, or 12⅛" long, 4⅝" wide, 11¼" deep. All ¾" seasoned pine. Toggle fastened lid—no nailing necessary. Cleated ends and lid.

PRICE: 50,000 available, at 85¢ each, F.O.B. LaPorte, Indiana.

CALL, WIRE or WRITE

VECO P.O. Box 298 B Phone 5-4281
BENTON HARBOR, MICH.



Agitating, aerating, combustion, cooling, ventilating, gas and acid manufacturing—these are a few of the applications in which our blowers and exhausters have found ready acceptance and proved more than satisfactory. And here's why:

- **TAILOR-MADE PRESSURE** . . . the exact amount of gas or air from ½ to 7 lbs. pressure to suit your temperature and density ranges.
- **CONSTANT PRESSURE** . . . motor drive and self-governing design eliminate separate controls, guarantee consistently even pressure.
- **NO CONTAMINATION** . . . no internal lubrication—air or gas is always kept dry, clean, never affected by blowing or exhausting.
- **LOW MAINTENANCE COST** . . . motor-driven shaft-impeller assembly is the only moving part, eliminates constant checking.

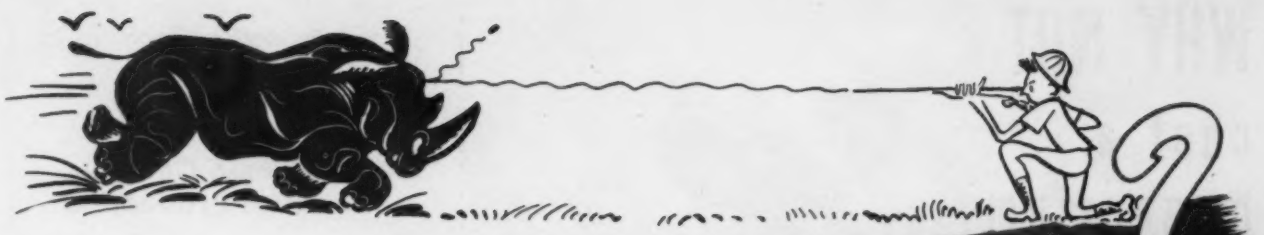
BILLMYRE has been a famous name in air-moving for over 50 years. Put this experience to work on your air or gas problem. Talk it over with our engineering staff.

For full information—descriptions, applications and specifications—write today for Bulletin B-5. BILLMYRE BLOWER DIVISION, Lamson Corporation, 300 Lamson Street, Syracuse 1, N. Y. Offices in principal cities. Consult your Redbook.

LAMSON







A "22" FOR A RHINO?



. . . no, No, NO — it takes something special to stop big game. BAY STATE has developed 3 special ways to "stop" your segmental grinding problems—big or small.

FRACTIONAL GRADES:
Where a whole grade change would be too great, BAY STATE splits a normal grade into 3 degrees of hardness.

KOOLPORE SPECIFICATIONS:
Where faster production is required without burning expensive tools, etc., BAY STATE manufactures segments with special induced pores.

ENGINEERING:
Where grinding problems are really tough, BAY STATE research has the answers. The answer for you may be a special grain combination — such as the popular BAY STATE "8A".

Ask for our "on-the-job" engineering service today.

BAY STATE

BAY STATE ABRASIVE PRODUCTS CO.
Westboro, Mass.

Branch Offices and Warehouses —
Chicago, Cleveland, Detroit, Pittsburgh
Distributors — All principal Cities
In Canada: Bay State Abrasive Products Co. (Canada) Ltd.
Brantford, Ontario

BAY STATE'S current expansion program includes a new 250 foot kiln plus a 30% increase in plant capacity . . . this means better deliveries to you.

WHY NOT cast a magnesium mousetrap?



Maybe it IS a lousy idea . . .

On the other hand, maybe it's as practical as using cheese for bait.

Frankly, we haven't gotten out a slide rule or put our thinking cap on tight, to figure it out one way or the other. Maybe the mice wouldn't go for it.

But we do know a lot of things WILL be cast in magnesium or aluminum after military requirements are satisfied.

A lot of things no one ever thought would be.

So whatever your plans are; whatever directions they might take; whatever products you might have on scraps of paper, in preliminary drawings, or just plain ideas-on-the-brain . . . . keep an open mind in terms of magnesium or aluminum in sand-cast, semi-permanent or permanent mold form.

Particularly Well-Cast castings.

Naturally.

Well-Made Wood and Metal Patterns • Ampco Bronze Castings

Almost a half-century of Experience

THE WELLMAN BRONZE & ALUMINUM CO.

DEPT. 17 12800 SHAKER BLVD. • CLEVELAND 20, OHIO

Production Tools and Equipment

(*Continued from page* 143)

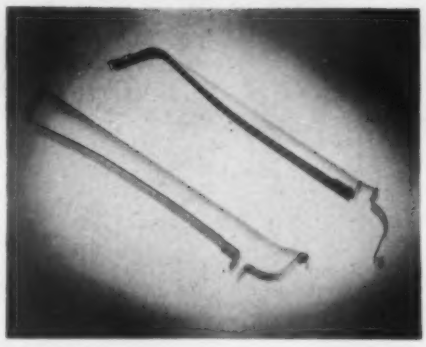
Electronic Control Increases Production



Large limestone operator in middle Tennessee using hammermills and electric vibrating feeders decided to try out electronic control which would control the output of the feeders in direct proportion to the amp demand on the motor driving the mill. After a short trial, the company so equipped other feeders feeding the mills, the result being an increase in their capacity approximately 15% to 20%.

COST SAVING ITEM—449

Metal Stitching Triples Output



Metal stitching cuts assembly time of anti-squeak felt to steel strap in the production of Jeep gas-tank straps by two-thirds and saves 5¢ per unit at the Willys-Overland plant, Toledo. Fastening the felt lining to the steel strap with metal stitches instead of rivets, the company boosted its production of straps to 300 units per hour. Five metal stitches anchor the strips of asphalt-saturated felt to the 18-gage steel strap. Stitches are formed from 18-gage tinned or galvanized wire having tensile strength of 290,000 to 300,000 psi.

COST SAVING ITEM—450

(*Please turn to page* 344)

Easy local call . . .



Walter C. Klawitter is typical of the friendly and efficient personnel in Standard Oil service-supply centers throughout the Midwest.

3 IMPORTANT ADVANTAGES

Standard Oil's Lubrication Service is especially geared to serve your midwest operations.

1 **Service-supply points** are near your plant. You are assured of-fast deliveries, prompt lubrication engineering service.

2 **Lubrication specialists** have been specifically trained in Standard Oil Lubrication Engineering Schools to help you obtain the maximum benefits from lubricants and fuels.

3 **Research and technical facilities** are geared to help solve your specific lubrication problems.

Fast local delivery

● Anywhere in the Midwest; a simple, local phone call will bring you any petroleum product you need—double-quick! Here's why: a service-distribution set-up—unique in the oil industry—has a Standard Oil office and warehouse located practically in your own backyard! Adequate stocks of the lubricants and fuels required for the efficient operation of your plant are warehoused at that service-supply center. You can always get the product you need—*when* you need it—delivered right to your door.

Here, too, are the local headquarters for a Standard Oil lubrication specialist. He is close at hand, will give you on-the-spot engineering service. He has plenty of practical experience. He has been specially trained for his job in a Standard Oil Lubrication Engineering School. He is backed by Standard Oil's extensive research and technical facilities.

Let this lubrication specialist and Standard Oil's efficient supply service help you make real savings. Phone your local Standard Oil (Indiana) service-supply center* today.

Standard Oil Company (Ind.), 910 South Michigan Avenue, Chicago 80, Illinois.

***Service-supply centers are located throughout: Colorado, Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Montana, Missouri, Nebraska, North Dakota, South Dakota, Oklahoma, Wisconsin, Wyoming.**

STANDARD OIL COMPANY STANDARD *(Indiana)*

Fine tools that promote consistent accuracy

Even the most highly skilled machinist finds it easier to maintain high production with consistent accuracy when equipped with quality tools. The added assurance which they afford permits faster precision work with less fatigue.

Brown & Sharpe supplies a complete line of Machinists' Tools that represent the fullest measure of sound design, precision manufacture and proven reliability. They are universally recognized by machinists as the criterion of quality tools.

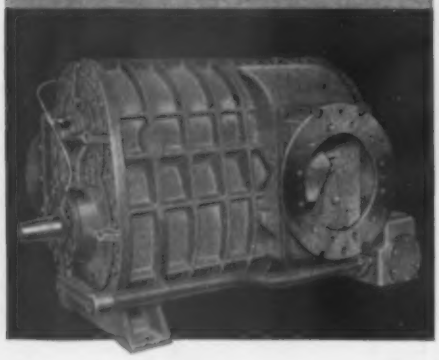


WE URGE BUYING THROUGH THE DISTRIBUTOR

Purchase for Profit...


Clean-Cutting,
Long-Wearing Cutters that
turn out high production
at top efficiency
The complete line of quality cutters made by Brown & Sharpe is designed to help you get top machine productivity at all times. Their longer wearing qualities mean a longer period of efficient cutting between sharpenings.
Styles include every type from plain milling cutters and end mills to metal slitting saws and cutters for special uses. Write for complete catalog.
Brown & Sharpe Mfg. Co.,
Providence 1, R. I., U. S. A.
... specify Brown & Sharpe
B·S

Standardaire Blowers



...BUILT TO TAKE IT

IN MANY APPLICATIONS

√ Air Conditioning √ Blowing Cupolas √ Combustion Air √ Chemical Processes √ Distillation Units √ Drying with Vacuum √ Gas Well Pumping √ Low Pressure Steam Pumps √ Mine Ventilation √ Oil Refining Processes √ Pneumatic Conveying √ Refrigeration Systems √ Sewage Treatment Plants √ Scavenging and Supercharging Diesel Engines √ Tunnel Ventilation √ Vacuum Systems √ Water Works Plants

PROOF!

AFTER 15 MONTHS OF CONTINUOUS OPERATION...



WRITE FOR PUBLICATION 9B16, the story of how one Standardaire Blower handled 1½ billion cu. ft. of high pressure air in a prominent chemical plant . . . 15 months operation, 24 hours a day, at 2200 r.p.m., equivalent to 20 years' service . . . **without appreciable wear.**

READ STANDARD
CORPORATION

370 LEXINGTON AVENUE • NEW YORK 17

★ Makers of Readco Bakery Equipment . . . Readco Material Handling, Chemical Processing, and Mixing Equipment . . . Standard Stokers ★

Production Tools and Equipment

(Continued from page 340)

Machining Time Cut 39%



Crescent guides for threads on a textile machine, molded by Builders-Providence, Inc., division of Builders Iron Foundry, Providence 1, R.I., are shown being removed from phenolic-sand foundry mold. The company states that they can be cleaned, ground polished and drilled in 39% less time than when cast by sandbox methods. Time required for the job is but 11½ minutes.

COST SAVING ITEM—451

(Please turn to page 347)



BALMASEPTIC

Combines the fine qualities and delightful scent of Dolge premium BALMA liquid soap with Hexachlorophene, the antiseptic agent used in modern surgical soaps. Regular washing with BALMASEPTIC not only cleans thoroughly but deposits on the skin a non-irritating film which reduces bacteria as much as 95%. Here's a true deodorant for shower as well as wash-up use, insuring "round-the-clock freshness."

Efficient dispensing equipment available. Ask your Dolge Service Man for demonstration.

dependable
DOLGE
WESTPORT, CONNECTICUT



this might happen to you

A WHOLE *SERIES* OF SAVINGS





Requirements were strict—the parts had to be small, light—had to stand up under hard service—tolerances were close Yet with Illinois help they were designed for our fast, economical, automatic production. Thus we helped "Osterette" quality Mixer get on the market—at the right time and priced for volume sales. Call us in early enough—we may help your design, do spring experimental work, produce in any volume. If specifications are already established, we will manufacture economically, dependably to exact requirements. Your inquiries invited.

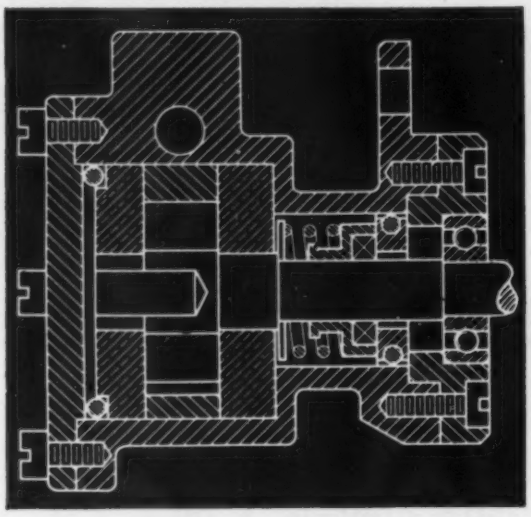
SPRINGS STAMPINGS WIRE FORMS BY

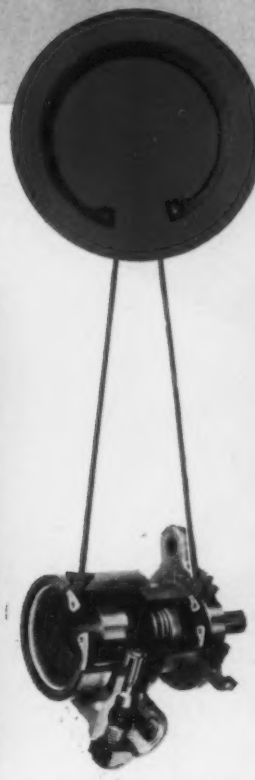
ILLINOIS COIL SPRING COMPANY

2100 N. MAJOR AVE., CHICAGO 39, ILL.
Phone BErkshire 7-6464

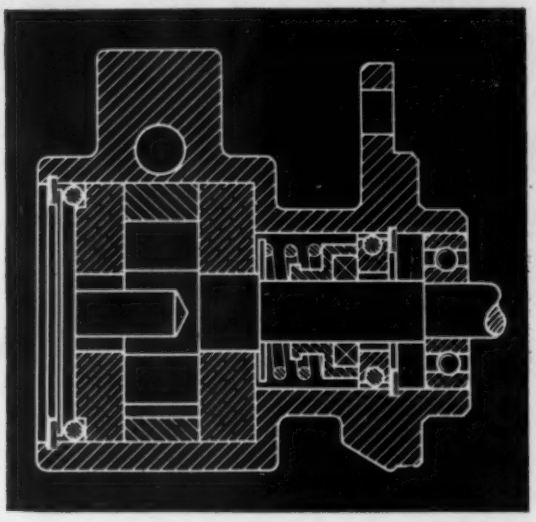
TWO TRUARC RINGS IN NEW PRESSURE PUMP SAVE $1.48 PER UNIT

OLD WAY Requires 4 skilled-labor threading operations...4 heavy screws on a cover plate and an internal tapped thread, plus plug at rear. Assembly is slow and difficult...maintenance necessary.





NEW WAY Just 2 Truarc Rings, set into accurately predetermined grooves, bring new simplicity of design... speedy assembly. No skilled-labor required! No maintenance! Rings lock parts accurately for life of unit.



Using 2 Waldes Truarc Retaining Rings in their new Pump, saved the Procon Pump & Engineering Co., Detroit, $1.48 per unit! With Truarc Rings, assembly is speedy, simple. Skilled-labor threading operations ...stripped threads...maintenance are eliminated. Parts are firmly held together for life of unit!

Redesign with Truarc Rings and you, too, will cut costs. Wherever you use machined shoulders, bolts, snap rings, cotter pins, there's a Waldes Truarc Retaining Ring designed to do a better job of holding parts together.

Truarc Rings are precision-engineered...quick and easy to assemble and disassemble. Always circular to give a never-failing grip. They can be used over and over again.

Find out what Truarc Rings can do for you. Send your blueprints to Waldes Truarc engineers for individual attention, without obligation. Waldes Truarc Retaining Rings are available for immediate delivery from stock, from leading ball bearing distributors throughout the country.

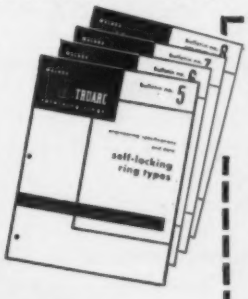
USE OF 2 WALDES TRUARC RINGS PERMITTED THESE BIG SAVINGS:

Eliminated 2 castings	$ .39
Eliminated 8 screws	.04
Eliminated machining of 2 castings	.56
Eliminated drilling and tapping housing	.40
Reduced assembly time by elimination of screws	.09
TOTAL SAVINGS	**$1.48**
Weight saved	14 ounces

For precision internal grooving and undercutting... Waldes Grooving Tool.



SEND FOR NEW BULLETINS ➡



WALDES

TRUARC

REG. U.S. PAT. OFF.

RETAINING RINGS

WALDES KOHINOOR, INC., LONG ISLAND CITY 1, NEW YORK

WALDES-TRUARC RETAINING RINGS AND PLIERS ARE PROTECTED BY ONE OR MORE OF THE FOLLOWING U.S. PATENTS: 2,382,947; 2,382,948; 2,416,852; 2,420,921; 2,420,341; 2,439,785; 2,441,846; 2,455,165; 2,483,390; 2,483,383; 2,487,802; 2,487,803; 2,491,306; 2,509,081 AND OTHER PATENTS PENDING.

Waldes Kohinoor, Inc., 47-16 Austel Place, L. I. C. 1, N. Y.
Please send engineering specifications and data on Waldes Truarc Retaining Ring types checked below. P-054

- ☐ Bulletin #5 Self-locking ring types
- ☐ Bulletin #6 Ring types for taking up end-play
- ☐ Bulletin #7 Ring types for radial assembly
- ☐ Bulletin #8 Basic type rings
- ☐ Send me information about the Waldes Grooving Tool.

Name_____

Title_____

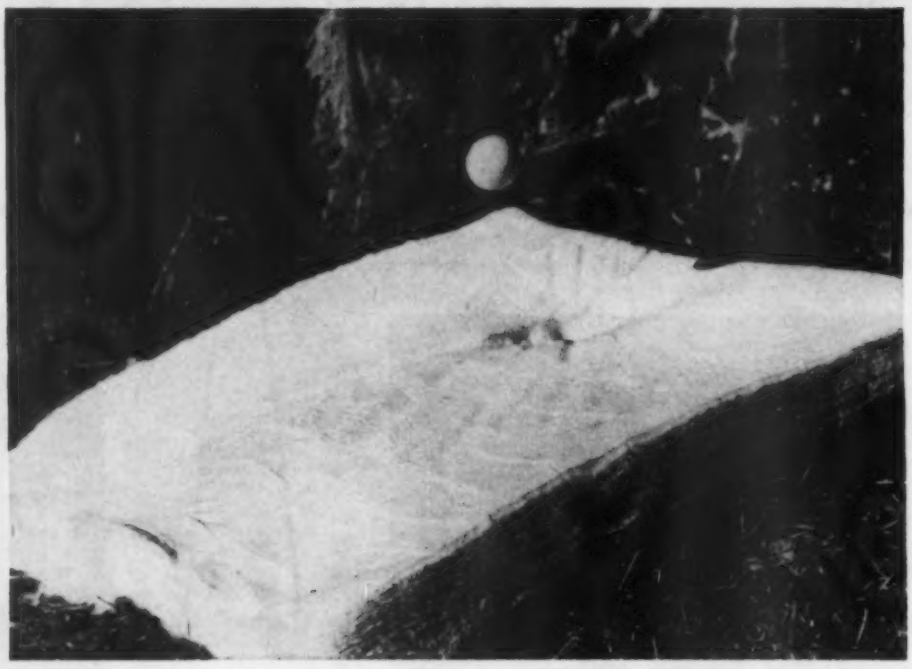
Company_____

Business Address_____

City_____ Zone_____ State_____ 5678

Ever See a Raw Egg Drop 25 Feet and *BOUNCE?*





(left) THERE GOES THE RAW EGG—from a roof-top 25 feet above the ground. (above) EGG BOUNCES! Photo taken split second after raw egg landed on 2-inch thickness of CELLULINER.

New cushioning material provides 4 times the packaging protection of Creped Wadding

When the Army, Navy and Air Force went hunting for a better protective packaging material last Spring, they found it in CELLULINER, a new product developed after many years of research by The Gilman Brothers Company of Gilman, Connecticut.

Test after test showed that CELLULINER had a compressive resilience of 71.4%. Creped wadding, the material commonly used for interior packaging, tests at only 17.8%. Special Gilman processes can also make CELLULINER mildew-proof and flame-proof. Today, millions of feet of CELLULINER are being used by the Armed Forces.

CELLULINER comes in two basic types: the *absorbent* type takes up over 16 times its weight in water; the *non-absorbent* type takes up under 2.4 times its weight and actually floats indefinitely. Both are soft, clean, flexible, chemically neutral (average H-ion concentration 6.8).

Finally, CELLULINER *insulates*—it's the most efficient barrier to heat and cold ever offered in a commercial interior packaging material.

• **Costs are in line.** Despite its 300% greater protective capacity, which cuts packing and shipping costs and losses from breakage or damage in transit, CELLULINER costs about the same per square foot as creped wadding. Users get 4 times the protection per packaging dollar or need to use far less material.



(right) President Lawrence M. Gilman of The Gilman Brothers Co. holds 1-inch thickness of flame-proofed CELLULINER against acetylene flame hot enough to melt steel. Only outer layer chars — his bare hand is safe against 2000° flame!

CELLULINER

REG. U.S. PAT. OFF.

the amazing new cushioning material

SAVES YOU MONEY

...on every package!

...on every shipment!

Whatever your packaging problem—flotation, blocking and bracing, or surface protection, CELLULINER's 300% greater compressive resilience saves you money. You get 4 times the protection of creped wadding! You cut breakage and damage losses, or, since CELLULINER's cost is about the same as creped wadding, you save by safely using far less! And CELLULINER's resilience lasts! CELLULINER stands up under heavy loads and repeated shocks—never develops "permanent set." That's why Army, Navy and Air Force are using millions of feet—why scores of major U.S. firms specify CELLULINER for all their plants!

CELLULINER FACTS

Comes in rolls or sheets 4" to 80" wide, .125" to 2.0" thick—or can be die-cut to any special shape at factory. Faced and backed with tissue, creped Kraft, rust-resistant or anti-tarnish paper, corrugated board, muslin or plastic to meet specific needs in either absorbent or non-absorbent types. Meets or exceeds Fed.Spec.UU-C-843. Can be flame-proofed to withstand acetylene torch temperatures above 2000° F. and/or mildew-proofed to meet or exceed Mil. Spec. MIL-F-5030. Chemically neutral, won't tarnish, corrode or chemically alter any material or product. Light, clean, soft, flexible, strong.

WHAT CELLULINER IS

A precisely manufactured cushioning material, made by special Gilman processes, from cotton, nature's own tubular form of cellulose. CELLULINER'S very high compressive resilience comes in part from this tubular structure—for the hollow tube is the lightest, strongest, most resilient structural form. Cotton's high insulating capacity helps to make CELLULINER the most efficient barrier to heat and cold commercially available in an interior packaging material. Made only by

The Gilman Brothers Company

GILMAN, CONNECTICUT • Est. 1897

The Gilman Brothers Company, Gilman 3, Conn.

Please give me more information about CELLULINER.

Name_____

Firm_____

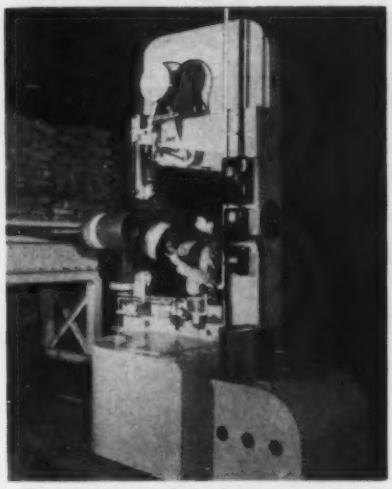
Address_____

City_____ Zone___ State_____

Production Tools and Equipment

(*Continued from page* 344)

Band Machines Reduce Handling Costs



Two extra height high-speed band machines used to cut rolls of plastic-impregnated fibre-glass sheeting at Owens Corning Fiberglas Corp., Kansas City, Kans. plant have considerably reduced production and warehouse handling costs. The rolls, often 40" thick, are made in standard 5' lengths, which has simplified warehousing and production. When order is received, standard roll is placed on horizontally power-driven mandrel and quickly cut to specified size. Formerly company had to stock a wide range of widths. The band machines cut the standard rolls smoothly and accurately to size.

COST SAVING ITEM—452

One Year's Savings Equal Cost of Press



The candle sticks illustrated, product of the Towle Manufacturing Co., Newburyport, Mass., are made up of five component parts, and all five are formed on an eight-ton multipress. On this one item alone, the savings in one year's time made possible by the hydraulic press, paid for its cost.

COST SAVING ITEM—453

(*Please turn to page* 348)



The character of the manufacturer shows in the product. Harrisburg manufactures a complete line of seamless steel cylinders for storage and transportation of high-pressure gases ... fixed, liquid, and medical. Sizes, capacities, and types for every purpose ... made to I.C.C. Specifications in Domestic and Export lines.



A copy of the Harrisburg High-Pressure Cylinders Catalog will be mailed promptly on request.

HP52-2

99 Years in Pennsylvania's Capital

Harrisburg Steel

CORPORATION HARRISBURG 19, PENNSYLVANIA



Tighter Tightening is easy for this Master Mechanic



BRISTOL'S SOCKET SCREWS

Order BRISTOL'S SOCKET SCREWS Hex and Multiple-Spline . . . cap and set styles *from your distributor*.

The Strength of CUSTOM-MADE for the Price of "Regular".

FREE SAMPLES and socket screw catalog. Address THE BRISTOL COMPANY, Mill Supply Division, 124 Bristol Road, Waterbury 20, Conn.

Production Tools and Equipment

(*Continued from page* 347)

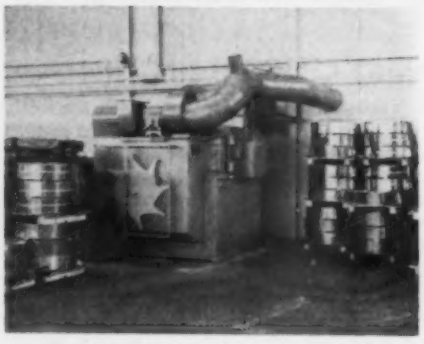
Production Costs Slashed 57%



Oil tanks, originally designed for wrap-around and hand-welded production, are now drawn on large press and seam welded, with spectacular saving of 57% at plant of the Superior Separator Company. Manager says that because of stability of press, recommended drawing rate of 55′ per minute could be exceeded, and press is operated at 75′ per minute without any tearing. He also states quality of work is unsurpassed.

COST SAVING ITEM—454

Dehumidifying Equipment Saves $2,000 A Year



The Kenilworth Steel Co., New Jersey finisher and warehouser, eliminated several time-consuming handling steps and reduced costs by installing dehumidifying equipment. Savings in tangible items — oil, labor, and inspection — are conservatively estimated at $2,000 a year by plant manager R. T. Connelly. In addition, store room is cleaner and housekeeping is less of a problem. The dryer holds the relative humidity in the storeroom to 40%.

COST SAVING ITEM—455

(*Please turn to page* 352)

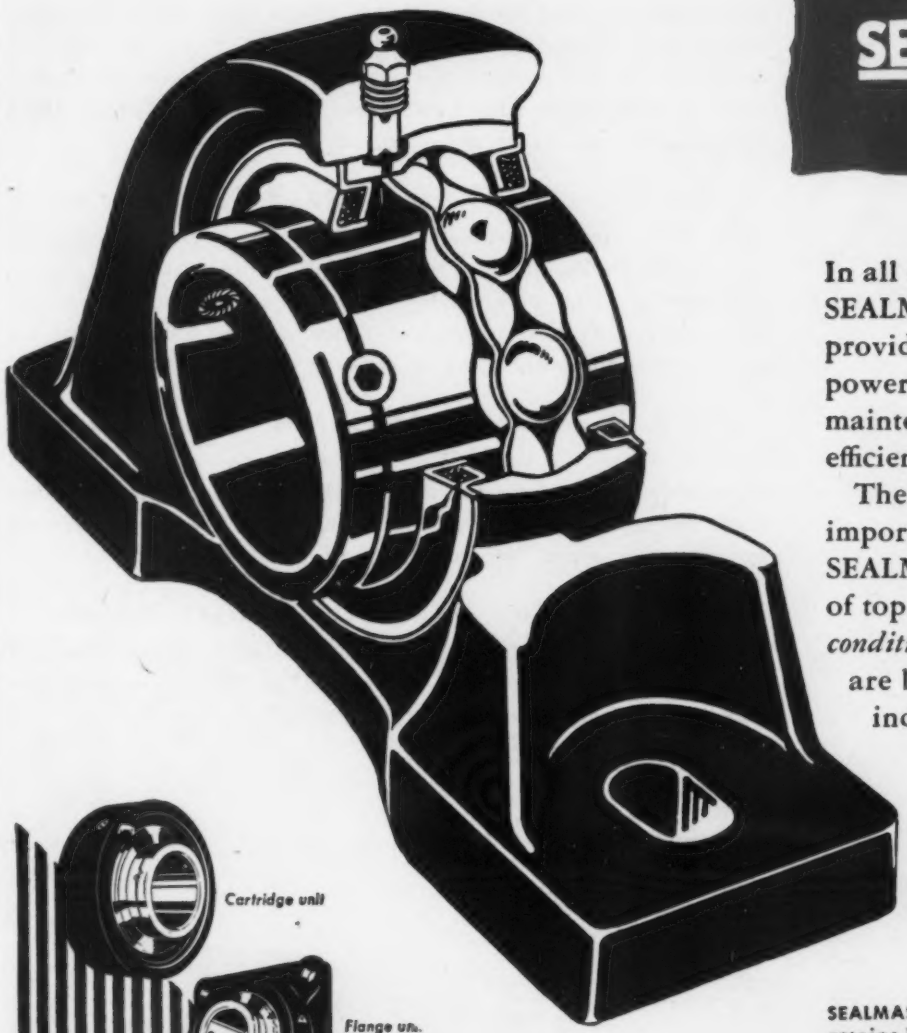
Wherever used...

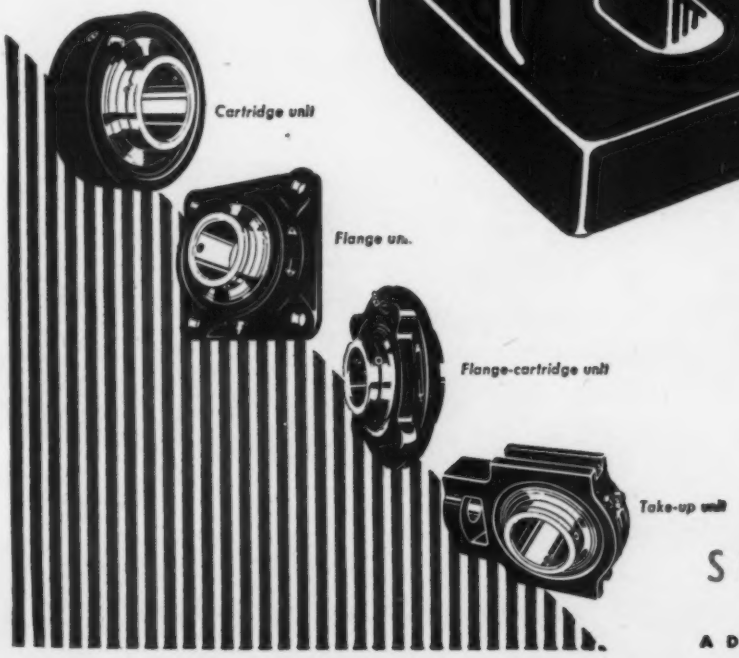
THEY ADD

BUILT-IN PERFORMANCE

SEALMASTER

BALL BEARING UNITS





In all types of machines, SEALMASTER Ball Bearing Units provide smoother operation, reduced power consumption, minimum maintenance and general all-round efficiency.

The exclusive combination of important features found only in SEALMASTERS is the best assurance of top performance *under all conditions*—superior qualities that are built right into each individual bearing.

Write for your copy of Catalog 845 which gives dimensions, load ratings and other data on the complete line of SealMaster Bearing units. If you have a special bearing problem ask one of our bearing specialists to assist you.

SEALMASTERS' patented centrifugal seal retains lubricant and excludes dirt. Self-aligning bearing assembly permits alignment without seal distortion. Factory-lubricated, **ALL SEALMASTERS** are shipped *ready for use.* Patented locking pin and dimple prevents rotation of outer race in housing and positions unit for relubrication.

SEALMASTER BEARINGS

51 RIDGEWAY AVENUE, AURORA, ILLINOIS

A DIVISION OF STEPHENS-ADAMSON MFG. COMPANY

FACTORY REPRESENTATIVES AND DEALERS IN ALL PRINCIPAL CITIES

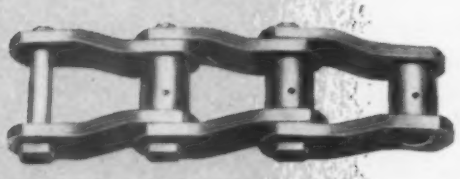


HOW UNION CHAIN MANUFACTURES

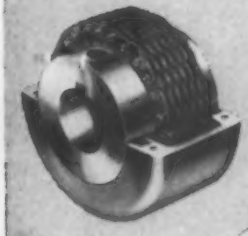
Since Union Chain concentrates all its efforts on the production of steel chains, sprockets and attachments, it has been able to make important advances in designing, manufacturing and testing. The resulting superiority of performance can also be attributed to the meticulous accuracy with which both conventional and *extra exclusively Union* manufacturing operations are executed.



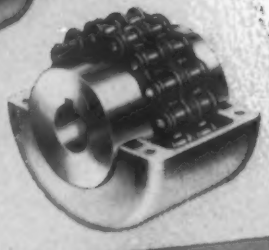
UNION ROLLER CHAIN



UNION HEAVY DUTY CHAIN



UNION SILENT CHAIN FLEXIBLE COUPLING



UNION ROLLER CHAIN FLEXIBLE COUPLING

Part I - How UNION CHAIN *Specializes*

Union Chain manufactures nothing but sprocket chains, sprockets and attachments. Not only that—Union Chain is the only manufacturer producing every type of steel sprocket chain *exclusively*. Such specialization is the reason Union Chain consistently produces chains of the finest quality for every possible application.

Part III - How UNION CHAIN *Recommends*

There is no need for Union Chain to recommend any chain but the right one — since Union Chain makes every type. Moreover, wide experience with every type of chain makes a recommendation from Union Chain's engineering staff a valuable one.

Part IV - How UNION CHAIN *Distributes*

Direct Factory Representatives are located in most industrial cities to provide a two-way communication service between customer and factory. See list at right—as well as list of Stock Carrying Distributors.*

*At the present time there is a heavy demand for many types of chain. Consequently, our distributors are not always in a position to fill all orders from stock.



HB STRAIGHT SIDE BAR ROLLER CHAIN

FINISHED STEEL ROLLER CHAIN • SILENT CHAIN • HEAVY DRIVE AND CONVEYING CHAIN •

UNION CHAIN REPRESENTATIVES

CALIFORNIA
American Chain & Gear Co.
C. A. Nicholas
5511 Pacific Blvd.
Huntington Park, California

Charles A. Fowler
889 Bryant Street
San Francisco 3, California

GEORGIA
H. F. Edge
208 Walton Bldg.
Atlanta, Georgia

ILLINOIS
Union Chain & Mfg. Co.
W. Albrecht
A. C. Mohr
B. Nelson
Room 1232
53 W. Jackson Blvd.
Chicago, Illinois

INDIANA
Paul W. Huddleston
5745 Guilford Ave.
Indianapolis 20, Indiana

LOUISIANA
F. N. Johnston Co.
236 Humble Oil Bldg.
909 S. Jefferson Davis Pkwy.
New Orleans 15, Louisiana

MASSACHUSETTS
Transmission Engineering Co.
Stanley Johnson
6 Hartford St.
Newton Highlands 61, Mass.

MICHIGAN
Union Chain & Mfg. Co.
W. J. White
Basso Bldg.
7338 Woodward Ave.
Detroit 2, Michigan

MINNESOTA
F. H. Bathke
490 N. Snelling Ave.
St. Paul, Minnesota

MISSOURI
J. B. Flaherty
5473 Delmar Blvd., Rm 206
St. Louis, Missouri

Ed Schiefelbein
311 West 10th St.
Kansas City 6, Missouri

NEW YORK
John B. Foley
107 Tully St.
Syracuse, New York

Mays & Gleason, Inc.
50 Church St.
New York 7, New York

Potter & Dugan, Inc.
29 Wilkeson St.
Buffalo, New York

NORTH CAROLINA
M. R. Snyder Co.
304 E. Tremont Ave.
P. O. Box 3341
Charlotte 3, N. Carolina

OHIO
Fred W. Borrow
2925 Portsmouth Ave.
Cincinnati, Ohio

Union Chain & Mfg. Co.
F. H. Dalrymple
F. Smiley
Marshall Bldg.
Cleveland 13, Ohio

OREGON
J. W. Minder Chain & Gear Co.
307 S. E. Hawthorne Blvd.
Portland 14, Oregon

PENNSYLVANIA
David Davies
P. O. Box 4
Plymouth, Pennsylvania

Wayne Ritter
3031 W. Liberty Ave.
Pittsburgh 16, Pennsylvania

Union Chain & Mfg. Co.
John A. Shoemaker
Room 521
Schaff Bldg.
Philadelphia 2, Pennsylvania

TEXAS
Union Chain & Mfg. Co.
J. H. Castleberry
E. T. Teal
205 Irwin-Keasler Bldg.
Dallas 1, Texas

VIRGINIA
C. Arthur Weaver Co.
403 E. Franklin St.
Richmond 19, Virginia

WISCONSIN
Union Chain & Mfg. Co.
Room 508
Wisconsin Tower Bldg.
606 W. Wisconsin Ave.
Milwaukee 3, Wisconsin

SPECIAL Representatives

NEW YORK
Frank L. Allen, Inc.
50 Church Street
New York 7, New York

E. F. Gahan
500 Fifth Ave.
New York, New York

OREGON
W. D. Hollingworth
Room 400 Concord Bldg.
208 S. W. Stark St.
Portland 4, Oregon

UNION CHAIN STOCK CARRYING DISTRIBUTORS

ALABAMA
Alabama Bearing Company, Inc.
182 E. Jefferson St.
Montgomery, Alabama

Alabama Machinery & Supply Co.
Dothan, Alabama

Mill & Mine Supply Company
124 S. 20th Street
Birmingham, Alabama

ARKANSAS
Service Supply Company, Inc.
20 North University Street
P.O. Box 145, University Station
Fayetteville, Arkansas

CALIFORNIA
American Chain & Gear Co.
5511 Pacific Blvd.
Huntington Park, California

Charles A. Fowler
889 Bryant St.
San Francisco 3, California

Valley Belting & Equipment Co.
2309 Los Angeles St.
Fresno, California

CONNECTICUT
Ideal Machinery Company
Plainville, Connecticut

Meter Equipment Co.
Wall & Water Sts.
Bridgeport 3, Connecticut

DELAWARE
The Briggs Rubber Products Co.
Wilmington, Delaware

Standard Industrial Supply Co.
403 Adams St.
Wilmington, Delaware

FLORIDA
Ellis & Lowe Co., Inc.
302-306 S. Morgan St.
Tampa, Florida

Farquhar Machy. Co.
720 West Bay St.
Jacksonville, Florida

General Equipment & Supply Co.
543 N. W. 5th Street
P.O. Box 1470
Miami, Florida

Industrial Marine Supply Co.
Pensacola, Florida

GEORGIA
Bearings & Drives, Inc.
515 Arch Street
Macon, Georgia

Georgia Hardware & Supply Co.
307 N. Washington St.
Albany, Georgia

Jim Horne Mill Supplies
Shellman, Georgia

Macon Supply Co.
Macon, Georgia

Phillips Hardware & Supply Co.
1022 Front Ave.
Columbus, Georgia

GEORGIA
Richmond Supply Co.
Augusta, Georgia

John D. Robinson Co.
13 Bay Street, West
Savannah, Georgia

J. M. Tull Metal & Supply Co.
285 Marietta St. N. W.
Atlanta 3, Georgia

IDAHO
Western Bearings, Inc.
520 Front St.
Boise, Idaho
Western Bearings, Inc.
156 South Third St.
Pocatello, Idaho

ILLINOIS
Hagerty Bros. Co.
923 S. Washington St.
Peoria 2, Illinois

W. M. Hales
P. O. Box 65
Danville, Illinois

W. M. Hales Co.
719 S. Main St.
Hillsboro, Illinois

W. M. Hales Co.
W. Frankfort, Illinois

Mid-States Industrial Corp.
2401 Eleventh St.
Rockford, Illinois

Northern Illinois Supply Co.
Carpentersville, Illinois

INDIANA
Diamond Supply Co., Inc.
616-24 N. W. Second St.
Evansville, Indiana

Sherer Electric Co.
940 S. West Street
Indianapolis 25, Indiana

The South Bend Supply Co.
South Bend, Indiana

KANSAS
Bearing Service Co.
341 N. St. Francis Ave.
Wichita 2, Kansas

W. A. Thomas Supply Co.
112-114 West Third St.
Pittsburg, Kansas

KENTUCKY
Ernest Hardware & Supply Co.
829 National Ave.
Lexington, Kentucky

Sherman Bros. Mill Supply
222 South Shelby St.
Louisville 2, Kentucky

LOUISIANA
Behring's Bearing Service, Inc.
Lake Carles, Louisiana

Dixie Bearing & Supply Co., Inc.
733 N. 21st St.
Baton Rouge, Louisiana

Weaks Supply Co., Ltd.
Monroe, Louisiana

Woodward Wight & Co., Ltd.
New Orleans, Louisiana

MARYLAND
Hagerstown Equipment Co.
Maryland Ave. & Memorial Blvd.
Hagerstown, Maryland

M. F. Holland Co.
Lee & Sharp Sts.
Baltimore, Maryland

MASSACHUSETTS
Bellamy-Robie, Inc.
45 Main St.
Cambridge, Massachusetts

Babcock Equipment Co.
163 Highland Ave.
Needham Heights 94, Mass.

MICHIGAN
Abrasive Supply Co.
821 W. Milwaukee Ave.
Detroit, Michigan

MINNESOTA
Iron Range Equipment Co.
490 N. Snelling Ave.
St. Paul, Minnesota

Jurgens Company
519 Cleveland Ave.
St. Paul 4, Minnesota

MISSOURI
Bonne Terre Farming & Cattle Co.
Bonne Terre, Missouri

Industrial Equipment Corp.
325 E. Walnut St.
Springfield, Missouri

Te-Co, Inc.
801-805 N. Second St.
St. Louis, Missouri

Wildhagen Machine & Supply Co.
224 S. Third St.
St. Joseph 5, Missouri

MONTANA
Western Foundry Co.
802 Toole Ave.
Missoula, Montana

NEW JERSEY
Burton Supply Co.
165 Park Ave.
Paterson, New Jersey

Mill Supply & Hardware Co.
285-289 N. Willow St.
Trenton 4, New Jersey

Old Reliable Supply & Equipment Co.
11th St. & Newton Ave.
Camden, New Jersey

NEW MEXICO
Union Industrial Corporation
112 East Mermod St.
Carlsbad, New Mexico

NEW YORK
Laurence Belting Co.
111 Chambers St.
New York, New York

S. H. Pooley Belting Co.
38 W. Seneca Street
Buffalo 2, New York

Transmatic Equipment Co.
11 North Pearl St.
Albany, New York

U. & S. Inc.
509 South West Street
Syracuse, New York

Ulster Foundry Corp.
20 St. James St.
Kingston, New York

NORTH CAROLINA
Piedmont Mill Supply Co.
P. O. Box 130
Salisbury, N. Carolina

OHIO
Brubaker Gear & Mfg. Co.
Barberton, Ohio

Cincinnati Transmission Co.
3330 Montgomery Road
Cincinnati 7, Ohio

C. J. Edwards Company
6408 Euclid Ave.
Cleveland 3, Ohio

Lima Armature Works, Inc.
440 N. Main St.
Lima, Ohio

Mill & Factory Supply Co.
317–10th St.
Toledo, Ohio

Wilkof Hardware & Supply Company
1100 Warner Road, S. E.
Canton, Ohio

Winkle Electric Co., Inc.
701 Andrews Avenue
Youngstown 2, Ohio

OKLAHOMA
C. F. Dagwell & Company
816 W. Main St.
Oklahoma City, Oklahoma

Ore Reclamation Company
301 N. Connell Ave.
Picher, Oklahoma

OREGON
Electric Steel Foundry
Eugene, Oregon

Fisher Bros. Company
522 Bond Street
Astoria, Oregon

Industrial Machinery & Supply Co.
1410 Adams Avenue
La Grande, Oregon

Industrial Steel & Supply Co.
North Bend, Oregon

J. W. Minder Chain & Gear Co.
307 S. E. Hawthorne Blvd.
Portland 14, Oregon

PENNSYLVANIA
A. C. Supply Company
1330 Federal Street
Philadelphia, Pennsylvania

S. S. Brenner
2303 E. Philadelphia Street
York, Pennsylvania

Clark Materials Handling Equipment Co.
1407 Derry Street
Harrisburg, Pennsylvania

Industrial Supply Co.
451 E. Broad St.
Hazleton, Pennsylvania

Keystone Bearing & Supply Co.
Second and Hamilton Sts.
Allentown, Pennsylvania

Maximon Machine Co.
801 N. Logan Blvd.
Altoona, Pennsylvania

Reilly Bros. & Raub
44 N. Queen St.
Lancaster, Pennsylvania

Sherwin Bearing Co.
1120 Wyoming Avenue
Scranton 1, Pennsylvania

Transmission Equipment Co.
903 E. Carson St.
Pittsburgh 10, Pennsylvania

SOUTH CAROLINA
Crawford & Garner, Inc.
P. O. Box 1839
Spartanburg, S. Carolina

O'Brien Debnam Company
213 E. Evans St.
Florence, S. Carolina

Southern Mill Supply Co.
Summerville, S. Carolina

Thackston-Davis Supply Co.
828 Gervais Street
Columbia, S. Carolina

TENNESSEE
Hoyt N. Payne Co.
P. O. Box 942
410 E. Depot Ave.
Knoxville, Tennessee

Tennessee Machinery Co.
114-119 Third Ave., South
Nashville 3, Tennessee

Tipps Engineering & Supply Co., Inc.
260 N. Front St.
Memphis, Tennessee

TEXAS
Allied Belting & Trans. Co
2614 Sylvan Ave.
Dallas, Texas

Beacon Supply Co., Inc.
1825 Washington Ave.
Houston 10, Texas

Bearing Specialists Co.
2902 Texas
Lubbock, Texas

El Paso Machine Works, Inc.
1600 E. 4th St.
El Paso, Texas

Great Western Supply Co.
14th & Throckmorton
Fort Worth, Texas

E. B. Hayes Machinery Co.
Marshall, Texas

Lloyd Electric Co.
511 El Paso St.
San Antonio, Texas

Overton & Mims, Inc.
1307 Indiana
Wichita Falls, Texas

VIRGINIA
Blue Ridge Hardware & Supply Co.
Bassett, Virginia

Mill Supplies Corp.
South Norfolk, Virginia

WASHINGTON
Electric Steel Foundry
1327 Washington St.
Spokane, Washington

WEST VIRGINIA
Park Engineering Sales Co.
2391 Dudley St.
Parkersburg, W. Virginia

Bluefield Hardware Co.
Bluefield, W. Virginia

Smith Steel Supply Co.
150 Peninsula St.
Wheeling, W. Virginia

WISCONSIN
Dale Industrial Supply Co.
528 Forest St.
P. O. Box 867
Wausau, Wisconsin

Richard E. Ela Co.
744 Williamson St.
Madison, Wisconsin

The Union Chain and Manufacturing Company • Sandusky, Ohio, U.S.A.

TRANSMIT POWER
UNION CHAINS
CONVEY MATERIALS

ATTACHMENTS • SPROCKETS • FLEXIBLE COUPLINGS • FOR ALL INDUSTRIES

more than 80 Oakite cleaning materials

to help speed your production

Short of Skilled Help?

Here's one way to solve one of your toughest problems! On all your production and maintenance cleaning operations—call in your local Oakite Technical Service Representative. His skilled in-plant assistance will help show you the way to speed up such jobs as:

Tank cleaning
Machine cleaning
Electrocleaning steel
Electrocleaning nonferrous metals
Pre-paint treatment in machines
Pre-paint treatment in tanks and by hand
Steam-detergent cleaning
Barrel cleaning
Burnishing
Better cleaning in hard water areas
Paint stripping
Pickling, deoxidizing, bright dipping
Treating wash water in paint spray booths
Rust prevention
Coolants and lubricants for machining and grinding

D. O. Subcontractors!

FREE Send for interesting booklet *"Some Good Things to Know About Metal Cleaning."* Oakite Products, Inc., 54 Rector Street, New York 6, N. Y. No obligation.

SPECIALIZED INDUSTRIAL CLEANING

OAKITE

MATERIALS • METHODS • SERVICE

Technical Service Representatives in Principal Cities of U. S. & Canada

Production Tools and Equipment

(*Continued from page* 348)

Backstand Saves Two Hrs. Per Operator Per Day



Using the backstand belt method to remove burrs and grip marks from tubing in plant of the Toledo Steel Tube Company, saved two hours per operator per day in the finishing department. Time is not lost making set-up wheels. One backstand belt will outlast 4 to 5 set-up wheels for this application.

COST SAVING ITEM—456

Die Production Life Increased 25%



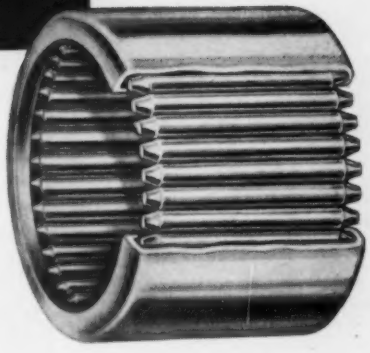
A 25% increase in the production life of punch dies resharpened with precision surface grinder equipped with a cool-grinding attachment, is reported by the Onward Mfg. Co., Kitchener, Ont. Production between grinds increased from 130,000 pieces to 175,000 pieces, reducing down-time of production machines as well as resharpening time. Dies are of high carbon, high chrome steels. Improvement was also reported in surface finishes.

COST SAVING ITEM—457

(*Please turn to page* 354)



david tames goliath...



Torrington Needle Bearings are small—but mighty! A full complement of precision-ground rollers distributes loads evenly over an extra-large area . . . providing greater radial capacity in relation to O. D. than any other type of anti-friction bearing.

This high capacity, combined with compact size, has helped improve the efficiency of many products. So have other Needle Bearing advantages—light weight, easy lubrication and long service life. Ask our engineers to give you the whole story on Torrington Needle Bearings in terms of *your* product!

THE TORRINGTON COMPANY

Torrington, Conn. South Bend 21, Ind.

District Offices and Distributors in Principal Cities of United States and Canada

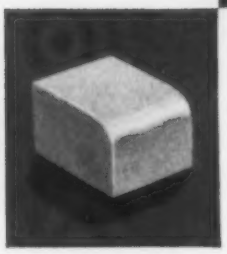
TORRINGTON NEEDLE BEARINGS

Needle • Spherical Roller • Tapered Roller • Straight Roller • Ball • Needle Rollers

From deburring tubing . . .



to sanding bevels



Armour Backstand Belts do the job right

For the thousands of jobs where backstand belts can save you time, for the thousands of jobs other coated abrasives do so well, Armour has the answer—there's an Armour coated abrasive to do *your* job right.

Saves 3 out of 5 minutes!

The LeRoi Company in Cleveland, Ohio, switched from set-up wheels to backstand belts in finishing forged paving breaker handles. Finishing time was reduced from 5 minutes 11 seconds to 1 minute 32 seconds—*saving 3 minutes 39 seconds per handle!* Now they know, too, that Armour's coated abrasives cut faster, last longer, and give a better finish.

Belts are only one of the many forms of coated abrasives available to you from Armour. There are more than 30,000 different varieties in grit size, backing, etc. Sheets, rolls, discs, tubes—and specialty sizes to meet your specifications.

Let your industrial supply distributor tell you about this complete Armour line. And ask him for your free copy of the booklet, "Facts about Backstand Belt Grinding and Polishing"—or send the coupon today.



We recommend buying through your industrial distributor



ARMOUR *Coated Abrasives*

MAIL THIS COUPON TODAY

Armour and Company • North Benton Road • Alliance, O.

Please send me the free booklet, "Facts about Backstand Belt Grinding and Polishing."

Name.....

Title.....

Firm.....

Address.....

City..... *Zone*..... *State*.....

Production Tools and Equipment

(*Continued from page 352*)

Production Increased 800%



With this setup at the Steger Furniture Co., Steger, Ill., production increased 800% and two full time girls were released for other work. The operator just fills the hopper with corner blocks for TV cabinets — the machine automatically drills, countersinks and ejects them at the rate of 80 holes per minute. The total cost for the set up — drill press base, table, column, and two heads, plus air cylinders and cycle box — including labor, is reported to be $600.

COST SAVING ITEM—458

Phenolic Sand Molds Cut Machining Costs



Picture shows connecting rod cast in phenolic-sand molds by Builders-Providence, Inc., division of Builders Iron Foundry, Providence, R.I. The phenolic-sand molds casting can be drilled, ground and cleaned in 16 minutes per piece — 30% less time than required when using sandbox methods for casting similar part.

COST SAVING ITEM—459

(*Please turn to page 356*)



SELL YOUR BRASS MILL SCRAP PROMPTLY

To keep production rolling

Help lick the shortage of brass and copper. Make sure that every pile of brass mill scrap in your factory — even if it is only a hundred pounds — is sold at once.

Not only is this scrap immediately salable on today's market — it will bring vital metal to the production lines where it is sorely needed.

Both the defense program and civilian needs require more and more copper and brass. To prevent increased shortages and even more stringent regulations, see that *your* brass mill scrap is moved promptly.

Chase® BRASS & COPPER

WATERBURY 20, CONNECTICUT • SUBSIDIARY OF KENNECOTT COPPER CORPORATION

• *The Nation's Headquarters for Brass & Copper*

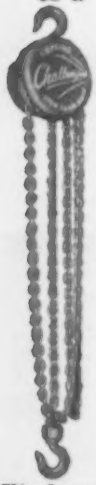
Albany†	Cleveland	Kansas City, Mo.	New York	San Francisco
Atlanta	Dallas	Los Angeles	Philadelphia	Seattle
Baltimore	Denver†	Milwaukee	Pittsburgh	Waterbury
Boston	Detroit	Minneapolis	Providence	
Chicago	Houston†	Newark	Rochester†	(†sales office only)
Cincinnati	Indianapolis	New Orleans	St. Louis	



for safety's sake

PUT YOUR LOAD ON
the hook that has never failed

Since its development over 25 years ago, *no one* has *ever* reported the failure of a Coffing Hoist hook under any load or overload. . . . And you'll find the same careful engineering for greater safety . . . the same close attention to detail in every part of a Coffing Hoist, for example:



Challenger Spur-Gear Hoists have these safety features:

- All steel—even the housing.
- Has five-to-one safety factor.
- Factory-tested at 100 percent overload.
- One man cannot pull a big enough overload to strain any part of a Coffing Challenger.

½-and 1-ton capacities

Find out more about the Coffing Safety-Pull hoists that are built stronger for safety's sake. Write Dept. Z5C.

COFFING HOIST CO.
DANVILLE, ILLINOIS

Quik-Lift Electric Hoists • Safety-Pull Ratchet Lever Hoists • Differential Chain Hoists • Spur Gear Hoists • Mighty-Midget Pullers • Load Binders • I-Beam Trolleys • Hoists-Alls.

SOLD BY DISTRIBUTORS EVERYWHERE

Production Tools and Equipment

(*Continued from page* 354)

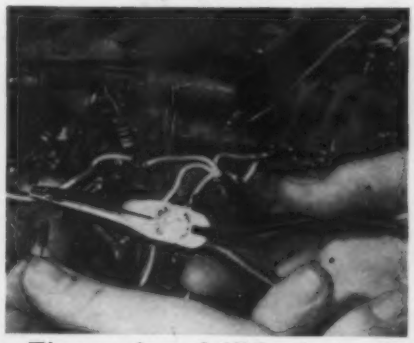
Air Gun Staple Operation Increases Production 15%



Illustration shows air-operated staple gun being used to tack the lining in expensive white kid overnight cases in plant of Amelia Earhart Luggage, Newark, N. J. Operator simply positions the tacker, flicks the trigger, and staple is driven exactly where it is wanted. Morton H. Bohrer of the company states that the air gun operation has eliminated considerable operator fatigue and increased production at least 15%.

COST SAVING ITEM—460

Long Nose Plier Saves 3.8% Per Day Per Operator



Time saving of 17.3 minutes, or 3.8% a day per operation was made possible by the use of a long nose plier on television chassis assembly line at the Cincinnati plant of the Crosley Division, Avco Manufacturing Corp. The time saving resulted from the incorporation of a cutting surface into the pliers itself,

(*Please turn to page* 360)



THERE is no one cutting fluid that best meets the requirements of every job. Therefore, Stuart offers you a *complete* line of cutting fluids. Often two or three Stuart cutting fluids, or varying dilutions of one or two, will answer all the needs of a shop. But, what a whale of a difference it makes when the cutting fluid that is used is the right one for the job!

GEAR SHAVING TOOL LIFE INCREASED 50%, FINISH IMPROVED WITH STUART'S THREDKUT

In a Chicago plant, two gear shavers were run side by side on the same job, one with the old cutting oil, one with Stuart's THREDKUT. Tool life with "x" oil—6000 gears; with THREDKUT —*9000 gears!* Finish with the other oil—satisfactory until 2500 to 3000 gears had been produced, then deteriorating until tools were replaced; with THREDKUT —completely satisfactory at all times.

It pays to put the *right* cutting fluid on the job. Ask to have a Stuart sales-engineer call.

Send for NEW BOOKLET entitled "MORE THAN A COOLANT IS NEEDED"

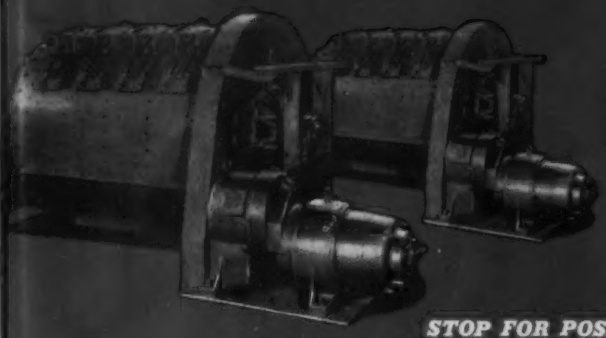
TIME-TESTED Cutting Fluids and Lubricants

D.A. Stuart Oil co.
EST 1865 LIMITED

2727-31 E. Troy St., Chicago 23, Ill.



SPEED UP PRODUCTION
Save time by stopping quickly with a compact integral brake unit



STOP FOR POSITION
Stop at the desired point for quickly and conveniently loading and unloading

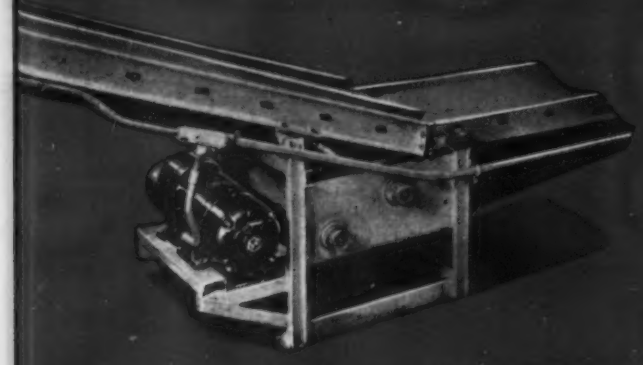


MASTER

UNIBRAKE MOTORS

1/8 TO 125 HORSEPOWER

THE MASTER ELECTRIC COMPANY • DAYTON, OHIO



STOP AND HOLD ANY LOAD
Unibrake motors are very advantageous on hoist, elevators, inclined conveyors, etc. . . .



STOP FOR SAFETY
Reduce the hazard of injury to workmen or damage to equipment which might cripple vital production

FACTS about ETHANOLAMINES



Amine solutions containing hydrogen sulfide can be piped or trucked to recovery installations for conversion to elemental sulfur.

The unique characteristics of the ethanolamines have led to their large volume use in varied industries. From dry ice to sulfur, from cosmetics to detergents, the mild alkalinity and high water solubilizing power of the ethanolamines are serving both industry and the household. To assist you in realizing full value from these basic materials, Dow offers you the following information:

For example, the ethanolamines can be used to recover hydrogen sulfide which can be converted to elemental sulfur. Also, you can control sulfur fumes with resulting lower maintenance costs from reduced corrosion. And, by preventing atmospheric contamination, your industrial standing in the community will be greatly enhanced. Many other uses can be developed for the ethanolamines in detergents, and cleaning and polishing compounds.

Despite today's shortages, Dow is interested at all times in helping you use the ethanolamines to best advantage in your present operations or in experimental work for future uses. For more information and technical assistance, write Dow using coupon at right.

Properties of Ethanolamines

	Monoethanol-amine	Diethanol-amine	Triethanol-amine
Molecular Weight	61.1	105.1	149.1
Boiling Point (760 mm.Hg), °F.	338.9	516.4	680.0
Freezing Point, °F.	50.0	81.7	87.6
Specific Gravity (77/77°F.)	1.015	1.093*	1.120
Refractive Index (77°F.)	1.453	1.475	1.483
Flash Point, °F.	185	285	—
Fire Point, °F.	190	330	—
Heat of Vaporization, cal./gm.	206.5	128.2	60.1
Heat of Fusion, cal./mole	3915	5351	3200

*at 80/77°F.

Solubility of Ethanolamines (at 77°F.)

	Monoethanol-amine	Diethanol-amine	Triethanol-amine
Acetone	∞	∞	∞
Benzene	sl. sol.	sl. sol.	sl. sol.
Ether	sl. sol.	sl. sol.	sl. sol.
VMP Naphtha	sl. sol.	sl. sol.	sl. sol.
Methanol	∞	∞	∞
Water	∞	∞	∞

This is one of a series of Dow advertisements you may wish to keep on file for reference and information. Write Dow for reprints.

USES OF ETHANOLAMINES

gas treatment



Monoethanolamine is used in removing carbon dioxide and hydrogen sulfide from gas streams. Then, the hydrogen sulfide may be selectively burned to produce sulfur.

When methane is burned to produce carbon monoxide and water in the manufacture of methanol, a certain amount of carbon dioxide is produced. This carbon dioxide, which would interfere with later operations, is removed with monoethanolamine.

Methane is scrubbed with monoethanolamine prior to making carbon black. This scrubbing removes any hydrogen sulfide which would subsequently be converted to sulfur and contaminate the carbon black.

Diethanolamine is used in much the same manner as previously described for monoethanolamine. However, diethanolamine may be used in cracking gases and coal or oil gases which contain carbonyl sulfide that would react with monoethanolamine.

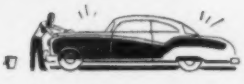
surface active agents



Monoethanolamine and triethanolamine may be reacted with sulfonated alkyls or fatty acids to produce detergents, soaps, shampoos and various cleaning compounds. To this date, the largest single use is in the production of a moderate duty household detergent.

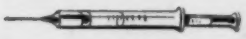
Diethanolamine is used extensively in the production of lubricants for the textile industry. These lubricants can be easily removed by the use of a detergent. Also, diethanolamine is used in detergents, soaps and cleaning compounds.

cleaning and polishing compounds



Triethanolamine is used in the manufacture of cleaners and polishes for metals, wood, leather, floors, and furniture. Triethanolamine soaps act as emulsifiers and dispersing agents in these applications. Triethanolamine is also used in automobile polishing, cleaning and degreasing compounds. It is used in emulsion stabilizers and dispersing agent for waxes and industrial lubricants.

miscellaneous uses



Monoethanolamine is reacted with other chemicals to produce an accelerator which has greatly reduced the time required for producing penicillin. Monoethanolamine is also used in a variety of other products such as wax removal compounds.

Diethanolamine is used as an emulsifier and dispersing agent in various agricultural chemicals, cosmetics and pharmaceuticals.

PRECAUTIONARY MEASURES

The ethanolamines do not present an appreciable fire hazard. Monoethanolamine has the lowest flash point of the three (185°F.) and should not normally present a hazard except in cases of large leaks or spills.

The ethanolamines present no unusual toxicity hazards. Monoethanolamine may cause skin irritation in concentrations greater than 1% and contact should be avoided as much as possible. Diethanolamine is markedly irritating in concentrations greater than 10%. Triethanolamine is not seriously irritating if diluted and will probably cause no serious difficulty unless prolonged or repeated exposures are encountered.

Strict precautions should be observed whenever there is a possibility of eye contamination with an ethanolamine. All persons should wear face shields, goggles with side shields, or the equivalent. Suitable facilities for washing the eyes should be readily available. If contaminated, the eyes should be washed with large amounts of flowing water and medical aid should be summoned.

If an ethanolamine is spilled on the person, all contaminated clothing should be removed and not worn again until decontaminated. The exposed area should be washed with plenty of flowing water and medical aid should be summoned for victims of extensive or prolonged exposure.

THE DOW CHEMICAL COMPANY • MIDLAND, MICHIGAN

WRITE DOW FOR INFORMATION AND TECHNICAL ASSISTANCE.

The Dow Chemical Company, Dept. OC-38A
Midland, Michigan

☐ **Please send_____reprints of this advertisement.**

Name_____ **Title**_____

Company_____

Address_____

City_____ **State**_____

DOW

CHEMICALS

INDISPENSABLE TO INDUSTRY AND AGRICULTURE

THERE IS MORE THAN ONE WAY TO..



MANY banking institutions, like the Society for Savings in the City of Cleveland, furnish such convenient banks to their depositors for an easier way to save those elusive coins. Ideal, too, to save for church or charity appeals.

★

THE USE OF
CLEVELAND CONTAINERS
IS ANOTHER WAY TO SAVE IN PACKAGING AND PROTECTING ENDLESS PRODUCTS

★

You obtain flexibility in packing; shipping at lower costs; individuality in new, eye-compelling designs; protection against careless handling.

★

FAST PRODUCTION FACILITIES . . .
PROMPT DELIVERIES
FROM OUR STRATEGICALLY LOCATED PLANTS.

Send for our latest literature . . .
full of money-saving suggestions.

The CLEVELAND CONTAINER Co.
6201 BARBERTON AVE. CLEVELAND 2, OHIO
• All-Fibre Cans • Combination Metal and Paper Cans
• Spirally Wound Tubes and Cores for all Purposes
★
PLANTS AND SALES OFFICES: Cleveland, Detroit, Chicago, Plymouth, Wisc., Jamesburg, N. J., Ogdensburg, N. Y. • ABRASIVE DIVISION at Cleveland
SALES OFFICES: Grand Central Terminal Bldg., New York City; Washington Gas Light Bldg., Washington, D. C.; West Hartford, Conn.; Rochester, N. Y.
Cleveland Container Canada, Ltd., Prescott, Ontario • Offices in Toronto and Montreal

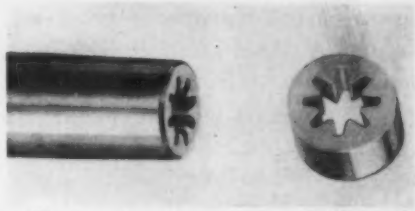
Production Tools and Equipment

(*Continued from page* 356)

near the tip—this eliminated the necessity of picking up a separate tool for the operation. Further, there was a decrease in hand and finger fatigue as a result of the handle of the pliers.

COST SAVING ITEM—461

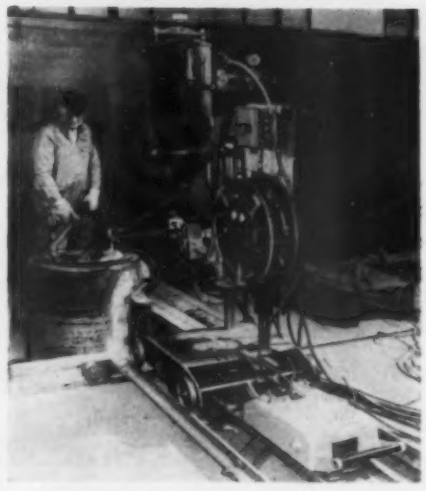
Spots Increased wth Fluted Hole Electrodes



Farm implement manufacturer using round hole electrodes averaged 1,000 spots per electrode. Replacing them with fluted water hole electrodes, the average jumped to over 6,000 spots.

COST SAVING ITEM—462

Welding Time Cut from 2½ Days to 2½ Hours



In the fabrication of high-pressure boiler feed water pumps at Byron Jackson Co., Los Angeles, Calif., the time for welding application totalling 20 hours was cut to 2½ hours by the introduction of submerged arc welding. Actual welding time for high pressure pumps has been slashed to a fraction of former welding time. Machining time is also sharply reduced, because the smooth welding deposits require only a minimum of machining.

COST SAVING ITEM—463

(*Please turn to page* 362)



One for every place— one place to get them all

PROBLEM—In every industry, designers and production engineers are constantly confronted with the problem of combating friction. Every turning part of machinery presents problems of speeds and loads—sometimes radial, sometimes thrust loads—usually both.

SOLUTION—Depend on SKF ball and roller bearings and pillow blocks to combat wasteful friction. SKF engineers can help you put the right bearing in the right place.

RESULT—Your equipment will improve in performance. SKF's wide range of bearing types and sizes, plus engineering know-how, makes it possible to select that type with those characteristics which make it the best choice for your particular application.

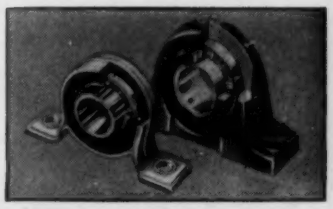
Write, **SKF INDUSTRIES, INC.,** PHILADELPHIA 32, PA.—*manufacturers of* **SKF** *and* HESS-BRIGHT *bearings.* 7343

SKF®
BEARINGS AND PILLOW BLOCKS

—or contact your authorized SKF Distributor to help you put the right bearing in the right place.



SERIES SAF—Ball or roller bearing pillow blocks, with Triple-Seal rings which keep dirt out, lubricant in. Wide range of load-carrying capacities.



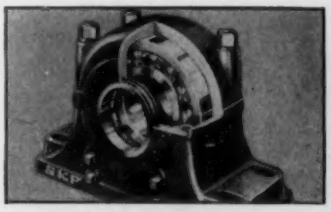
SERIES SES and SY—Unit ball bearing pillow blocks. The SES is mounted in rubber, prevents transmission of noise. The SY permits liberal misalignment—is effectively sealed by famous SKF Red Seal.



SERIES SUS and SUA—Unit ball bearing pillow blocks (SUAR equipped with spherical roller bearings). Ring seals exclude dirt. The SUA is an adapter-type mounting.

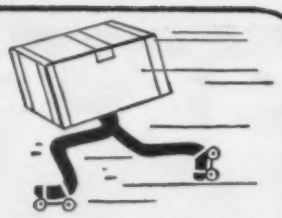


SERIES FUS and FUA—Ball bearing flanged unit having same features as SUS and SUA pillow blocks. (FUAR equipped with spherical roller bearings).



SERIES SDAF—Exceptionally sturdy construction for unusual shock and heavy thrust loads. Equipped with Triple-Seal rings for bearing protection.

Put your PACKAGES on ROLLER SKATES with Standard Conveyors



Whatever you have to handle — packages, units, cartons, castings, assemblies — you can keep them rolling — faster — at lower cost with conveyors.

Whatever you need in conveyors — a complete engineered system, a portable, self-contained conveyor unit — Standard is known as headquarters for conveyors — gravity and power, roller, belt, slat, push-bar — spiral chutes — pneumatic tube systems.

Write telling us what you make or handle. We will send literature showing Standard Conveyors at work in your kind of business. Address Dept. P-52.

STANDARD CONVEYOR COMPANY
General Offices: North St. Paul 9, Minn.
Sales and Service in Principal Cities

Engineered Conveyor Systems — Portable Conveyor or Units — Spiral Chutes — Pneumatic Tube Systems.

Standard

Write for valuable reference bulletin No. 308 — address Dept. P-52





BUY AMERICAN...Tubular and Split Rivets...

Production Tools and Equipment

(*Continued from page* 360)

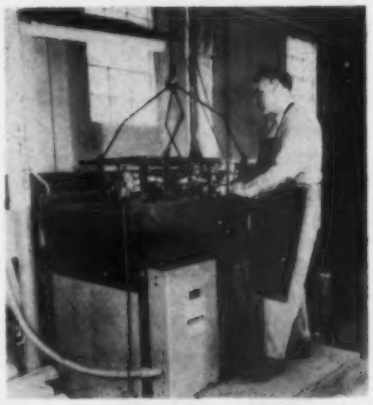
Fewer Rejections; 10 to 15% Fuel Saving



Application of duration-adjusting type temperature control to pair of continuous hardening furnaces at SKF Industries, Incorporated, Philadelphia plant, for heat treating of bearing rollers, resulted in 5 to 10% reduction in rejects due to better temperature uniformity, reduced cost of inspection, and brought about a 10 to 15% drop in fuel consumption. Drop in fuel consumption was largely due to elimination of overheating by the automatic controls which provide steady heating at the desired value.

COST SAVING ITEM—464

Cleans Parts 3 to 4 Times Faster



Skilsaw, Inc., Chicago, makes use of an *electric* batch type vapor degreaser to clean both aluminum and iron castings, steel stampings, shafts and screw machine parts. Three to four times faster cleaning

(*Please turn to page* 366)

ALUMINUM MONEL* BRASS STEEL

NEED METALS?

INCONEL* STAINLESS STEEL NICKEL*

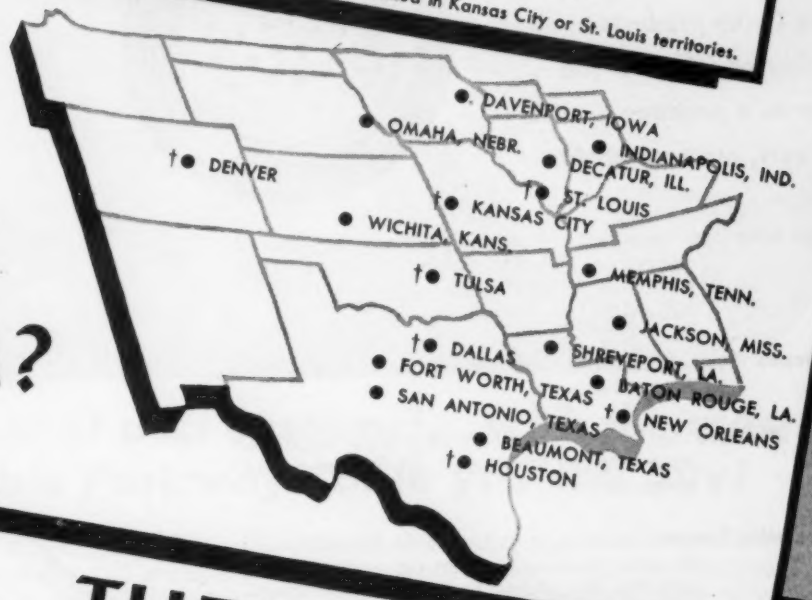
COPPER

Sheet, Plate, Tube, Pipe, Wire, Rod and Bar, Extrusions, Structural Shapes .. and the following INDUSTRIAL PRODUCTS: Fasteners, Tube Fittings, Pipe Fittings, Valves, Silver Brazing Alloy, Welding Material, Solder, Castings, Tube Expander Equipment, Liquid Plastic Protective Coating, Metallic Caulking Compound, Aluminum Metal Trim, Waterproof Barriers, Nails, Handrail Fittings, Low Melting Alloys, Aluminum Jacketing, Wire Cloth and Rope, and "O" Rings.

Precision Equipment for Shearing and Slitting

*Not stocked in Kansas City or St. Louis territories.

IN THIS AREA?



THEN CALL:

METAL GOODS CORPORATION

OFFICES AND WAREHOUSES†

St. Louis 15, Missouri
5239 Brown Avenue
Nels Hower
Phone: GOodfellow 1234

Kansas City 16, Mo.
1300 Burlington
Frank D. Hogan
Phone: NOrclay 3516

Tulsa 3, Oklahoma
302 North Boston
Scott J. Harrison
Phone: 4-1175

New Orleans 12, La.
432 Julia Street
Carl T. Wedemeyer
Phone: CAnal 7373

Houston 3, Texas
711 Milby Street
Harris T. Gregg
Phone: CEntral 8881

Denver 2, Colorado
2425 Walnut Street
Cornelius C. Dehn
Phone: AComa 5891

Dallas 9, Texas
6211 Cedar Springs Rd.
Sam D. Hodgdon
Phone: ELmhurst 3271

SALES SERVICE OFFICES

Jackson, Mississippi
781 Raymond Road
George E. Akerberg
Phone: 5-2711

Wichita, Kansas
2200 East Central
Ray Noller
Phone: 7-8921



Call, wire, or write nearest Metal Goods Corporation Representative:

Decatur, Illinois
1305 West Sunset
Fred Greer
Phone: 8-1314

Baton Rouge, Louisiana
4419 Mimosa Street
Paul P. Vidovic
Phone: LOuisiana 4-4738

Shreveport, Louisiana
3656 Beckham Drive
E. H. Currie, Jr.
Phone: 8-9281

Memphis, Tennessee
713 Columbian Mutual Tower Bldg.
Robert W. Downs
Phone: 5-8721

Davenport, Iowa
924 State Street
Robert L. Tharp
Phone: 2-3156

Omaha, Nebraska
3515 No. 67th Avenue
C. M. Cooley
Phone: Walnut 1112

Beaumont, Texas
238 Bowie Bldg.
L. T. Dodson
Phone: 4-6212

Fort Worth, Texas
3821 Carolyn
John M. Turbitt
Phone: WEbster 0477

San Antonio, Texas
2012 Alamo Natl. Bldg.
Roy D. Bagaley
Phone: GArfield 3161

General Offices: St. Louis 15, Missouri

call Carey

. . . for everything in Asbestos



. . . these Carey products go together on job after job . . . sell them as a package . . . and reduce costs, increase profits!

Pipe Coverings—Super-Light 85% Magnesia Precision Molded blocks and sections—Tempchex—Hi-Temp 19—Asbestos Air Cell—Wool Felt and other quality insulating materials for high and low temperatures.

Asbestos Paper—For wrapping hot air furnace pipes—making gaskets, filters and discs.

Asbestos Millboard—For fire screens, partitions, range lining, radiator recesses—wherever heat-resistant, fire-resistant material is required.

MW-50 Insulation Cement—The leading monolithic cement. Maximum insulation value; toughness, hardness and excellent sticking properties. Most efficient for large area construction—recommended for maintenance of insulated surfaces. Easily and quickly applied.

Asbestos Insulation Cements—For all types of heat insulation jobs . . . from pointing up fittings to final surfacing insulation. Special types for specific requirements.

Asbestos Furnace Cement—Developed especially for mounting furnaces, stoves, boilers and flue pipes—for setting or patching refractories, cementing joints and cracks exposed to heat. For temperatures up to 2000° F.

Asbesto-Sorb—Thirsty fibers of asbestos that soak up oil, grease, water, chemicals, help maintain safety underfoot.

these CAREY offices are as close as your telephone

ATLANTA	LAmar 5451
BOSTON	CHarlestown 2-1725
CHICAGO	DEarborn 2-4775
CINCINNATI	POplar 1323
CLEVELAND	HEnderson 1-6500
DALLAS	LOgan 5261
DETROIT	TRinity 5-4680
INDIANAPOLIS	RIley 7332
LOS ANGELES	RIchmond 5207
MONTREAL	UNiversity 6-4086
NEW YORK	VAnderbilt 6-1530
PHILADELPHIA	BAldwin 9-6430
PITTSBURGH	GRant 1-7490
ST. LOUIS	NEwstead 1930
SAN FRANCISCO	SUtter 1-4580
SEATTLE	SEneca 2351
WASHINGTON, D. C.	OVerlook 2300

FREE! New Carey reference list for asphalt, asbestos and magnesia products and specifications, including Army, Navy, MIL, Federal, ASTM. Clip and mail coupon for your valuable FREE copy today.



The Philip Carey Mfg. Company
Lockland, Cincinnati 15, Ohio
Department PU-5
Gentlemen: Please rush my free copy of the Carey Reference Manual for Asphalt, Asbestos and Magnesia Products.

NAME.....

COMPANY.....

ADDRESS.....

CITY.....STATE.....

Carey

The Philip Carey Mfg. Company, Lockland, Cincinnati 15, Ohio
In Canada: The Philip Carey Co., Ltd., 277 Duke St., Montreal, 3 P. Q.

PARKWAY CABLE



Save the cost of duct systems!...with the most dependable Parkway Cable you can buy!

ROEBLING'S research staff is continually working at the job of product development. Our manufacturing facilities and techniques are constantly improved. That's why our Parkway Cable for distribution and general power supply circuits is today even more dependable than ever before.

Roebling Parkway Cable saves money right from the start because it is buried directly in a shallow, low-cost trench. It is made in single and multiple conductor – solid or stranded – in a range from 600 to 5,000 volts . . . furnished with metallic armor or a non-metallic *Roeprene* sheath, depending on the physical protection required. Types that pass all C.A.A. requirements for Specification No. L-824 for airport lighting are also available.

Large quantities of Roebling's full line of electrical wires and cables are needed in the rearmament program. We and our distributors will do everything possible, however, to meet your requirements. John A. Roebling's Sons Company, Trenton 2, N. J.

ROEBLING

ATLANTA, 934 AVON AVE • BOSTON, 51 SLEEPER ST & 5 PITTSBURGH ST • CHICAGO, 5525 W. ROOSEVELT RD • CINCINNATI, 3253 FREDONIA AVE • CLEVELAND, 701 ST. CLAIR AVE, N. E. • DENVER, 4801 JACKSON ST • DETROIT, 915 FISHER BLDG • HOUSTON, 6216 NAVIGATION BLVD • LOS ANGELES, 5340 E. HARBOR ST & 120 S. HEWITT ST • NEW YORK, 19 RECTOR ST • ODESSA, TEXAS, 1920 E. 2ND ST • PHILADELPHIA, 230 VINE ST • PITTSBURGH 1301 CLARK BLDG • ROCHESTER, 1 FLINT ST • SAN FRANCISCO, 1740 17TH ST • SEATTLE, 900 1ST AVE S. • ST. LOUIS, 3001 DELMAR BLVD • TULSA, 321 N. CHEYENNE ST • EXPORT SALES OFFICE, TRENTON 2, NEW JERSEY



WHEN
ABRASION
IS THE PROBLEM...

. . . SPECIFY
STALWART RUBBER PARTS

From dog bones to hood grommets, STALWART produces rubber parts to withstand almost any abrasive force. Maximum resistance to continual or intermittent wearing action can be built into the rubber parts required for *your product.*

STALWART can supply parts from stocks compounded specifically to combat other enemies of rubber . . . *oil and gasoline, extreme temperatures, chemical action, weather.* From more than *500* different stocks at their disposal, **STALWART** experts can specify the exact rubber compound which will serve best in a particular application.

Precision-fabricated parts can have varying degrees of hardness, tensile strength, and elongation to meet *individual, S.A.E. or A.S.T.M. specifications.*



Write today for illustrated catalog No. 515R-1 for additional details.

615-SR

STALWART RUBBER COMPANY

200 NORTHFIELD ROAD • BEDFORD, OHIO

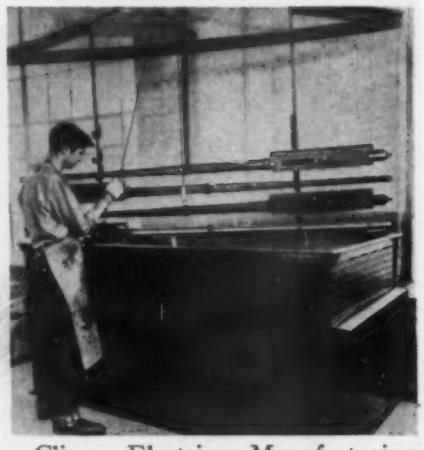
Production Tools and Equipment

(*Continued from page 362*)

is reported because of the high efficiency, high temperature cleaning the unit provides. Cleaning is also more thorough.

COST SAVING ITEM—465

Save 85% in Degreasing Costs Per Gun



Cline Electric Manufacturing Co., Chicago, reports saving of 85% in the removal of Cosmoline from 20 mm guns to be modified for the army. The savings were accomplished by the use of a batch type *electric* vapor degreaser, which allowed one man to handle 16 guns per hour, cleaning them more thoroughly than possible by less modern methods. Job was completed and delivered in a fraction of the time that would otherwise have been required.

COST SAVING ITEM—466

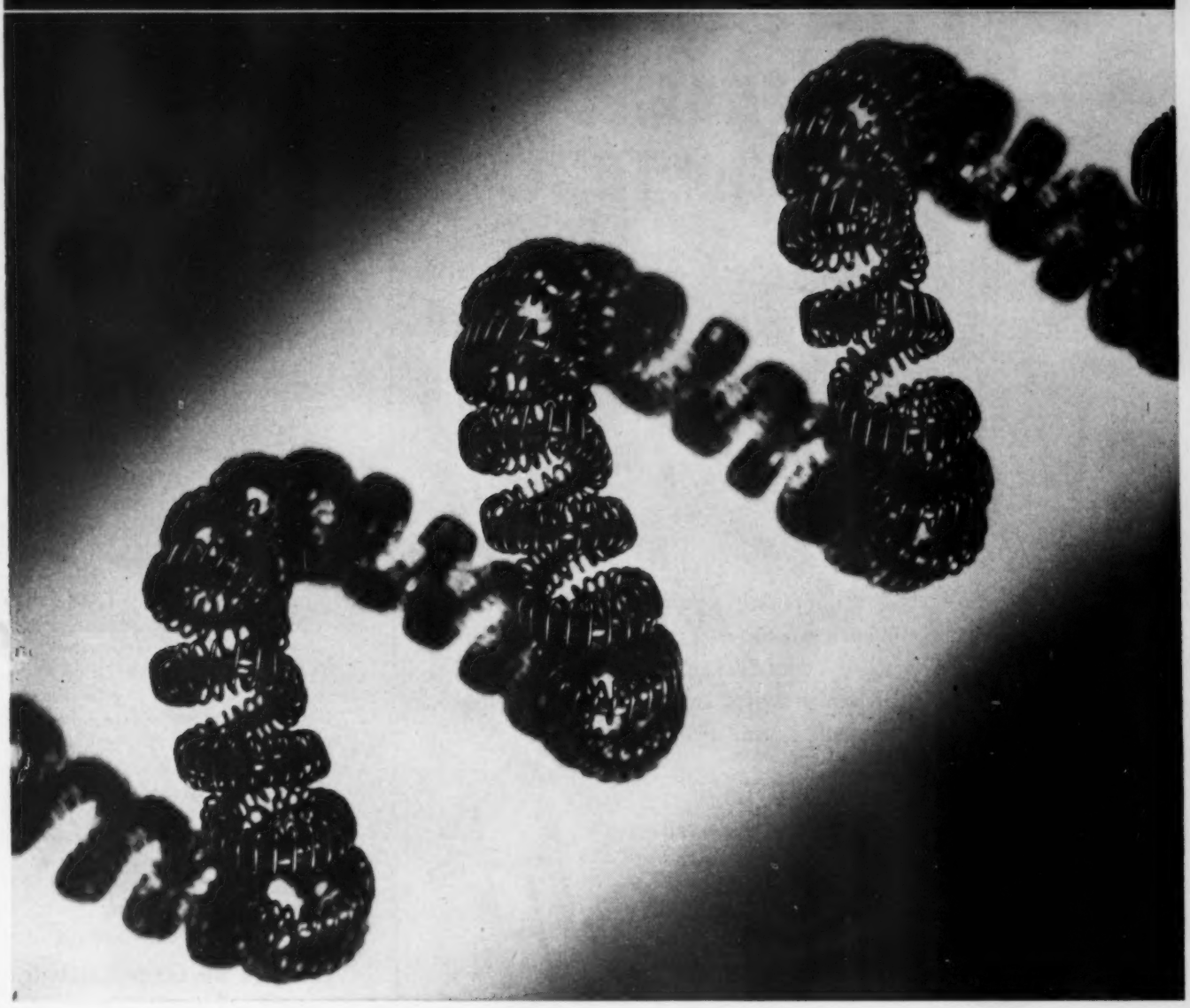
Belt Grinding Increases Production 5 Times



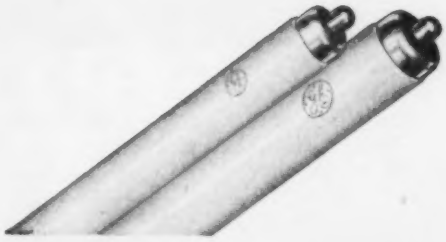
Here the full cutting width of abrasive belt grinds ganged aluminum forgings. The pieces were formerly milled, and the need for registry and clamping made it a slow

(*Please turn to page 368*)

You expect the best value from G-E fluorescent lamps



How an extra coil gives you extra light from G-E slimline lamps



A special chemical deposited on tungsten wire at each end of a fluorescent lamp helps start the stream of electrons that bring you light. When the chemical finally burns out or drops off, out goes the lamp. So in most fluorescent lamps, slimline and standard alike, wire twisted into a double coil is used to hold as much of the chemical as possible as long as possible.

But General Electric lamp scientists found a way to coil the coil again — making a *triple* coil. This triple coil holds more of the starting chemical and holds it more securely. Used in G-E slimline and other General Electric instant-start fluorescent lamps, it gives you extra light for your money because it makes the lamps last longer. This is another example of why you can *expect* the best value from G-E fluorescent lamps.

You can put your confidence in —

GENERAL ELECTRIC

TAKE THE **LOAD** OFF YOUR MIND

with **Fairbanks®**

STEEL-FRAMED PLATFORM TRUCKS



Load 'em high...treat 'em rough...Fairbanks steel-framed trucks always come back for more. Tough select oak platform, bolted to a sturdy steel frame, mounted on famous smooth-running Fairbanks swivel casters...give you low cost service, mile after mile, year after year.



Series 21 **LOCK-WELD SWIVEL CASTERS** eliminate the greatest cause of caster failure: the king pin.



Fairbanks Steel-framed **HAND TRUCKS**...a type for every purpose...in every industry.



THE **Fairbanks** COMPANY

393 LAFAYETTE STREET • NEW YORK 3, N.Y.

Branches:

New York 3 • Pittsburgh 22 • Boston 10 • Rome, Ga.

VALVES • DART & PIC UNIONS • TRUCKS • CASTERS

Production Tools and Equipment

(Continued from page 366)

job. For belt grinding they are held in V-blocks behind retaining springs and the loading time is greatly reduced. Operator loads one holder while other is grinding. New production rate is 330 per hour—5 times the previous result. This case illustrates the economy of multiple loading operations.

COST SAVING ITEM—467

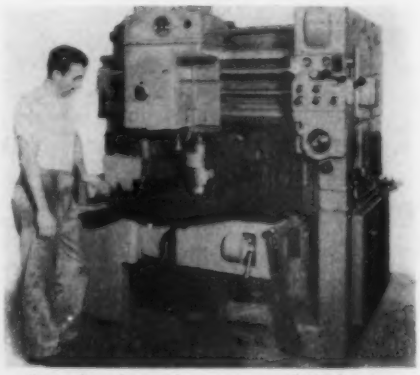
Machining of Ammunition Box Speeded up 200%



Under methods formerly used, the rim for this ammunition box was milled for close fitting cap at a rate of 33 per hour. The box is now being machined on a wet-belt machine at a rate of 89 per hour. The box must be water tight. With the entire edge held against the platen and ground at the same instant, a true-flat plane and uniform surface are obtained.

COST SAVING ITEM—468

Saves 29% on Gear Cutting Time



Production time on a 34" bronze gear was cut from six hours to 1 hr. and 55 minutes on the gear shaper illustrated, in plant of the Samuel M. Langston Company, Camden,

(Please turn to page 372)



APPOINTMENT WITH TIME

When you travel by train (or, for that matter, by plane or any public carrier) you expect to arrive on time. Unconcerned, you click-click across switches in the yard district . . . swish past the clang of grade crossings . . . roar by freights only a few inches away . . . Your confidence lies in experienced railroaders and properly maintained roadbeds and signal equipment.

Over every mile of track, your safe and speedy progress is guarded. Guarded by semaphores, position and color light signals, dwarf signals, automatic train controls, interlocking control machines in far-away towers, and other elements in an all-inclusive safety pattern.

An *unseen essential* in this safety pattern, reliable and hard-working, is *Synthane*. Synthane is a strong, light-weight, laminated plastic. It's an excellent electrical insulator, moisture and chemical-resistant, hard, tough and dense. It is also easy to machine. Synthane is a material for small parts or large on any job where a combination of properties is needed and good performance is a "must".

Maybe you can use Synthane profitably. To find out, send for the complete Synthane catalog. We will be glad to help you with design, sheets, rods, tubes or fabricated parts. Synthane Corporation, 7 River Road, Oaks, Pennsylvania.

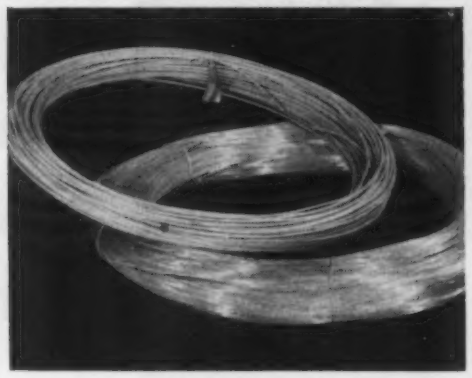


Terminal Board (left) for continuous train control and relay pusher (right). Both pieces are made from Synthane laminated plastics for General Railway Signal Co., Rochester, N. Y.

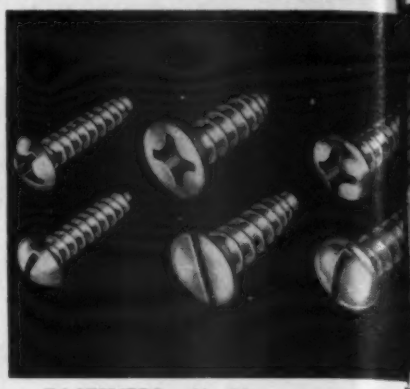
Synthane-one of industry's unseen essentials

SYNTHANE

LAMINATED PLASTICS



WIRE—Coiled and straight lengths; rivet wire; flattened and slit wire.

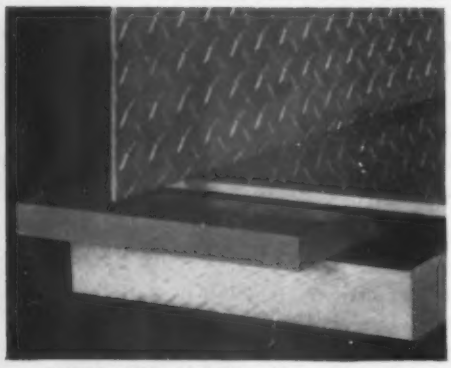


FASTENERS—Machine screws, wood screws, washers, nuts, bolts, rivets.



TUBE AND PIPE—Coiled tube; straight tube in round, square and rectangular shapes; heat exchanger tubes; standard pipe and pipe fittings; irrigation pipe; rigid conduit.

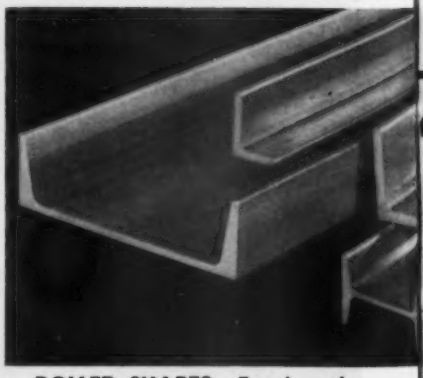
These are the MILL PRODUCTS *of* ALCOA



SHEET AND PLATE—Flat and coiled sheet; circles; patterned sheet; tread plate; roofing and siding sheet; roofing accessories and fasteners; specialty sheet.



BAR STOCK—Square, hexagonal and rectangular bar stock in free-cutting and higher-strength alloys.



ROLLED SHAPES—Equal angles; unequal angles; channels; I-beams; H-beams; Tees; Zees.



NOW 6:30 P.M. EDST every Sunday —"SEE IT NOW" with Edward R. Murrow . . . brings the world to your armchair . . . CBS Television

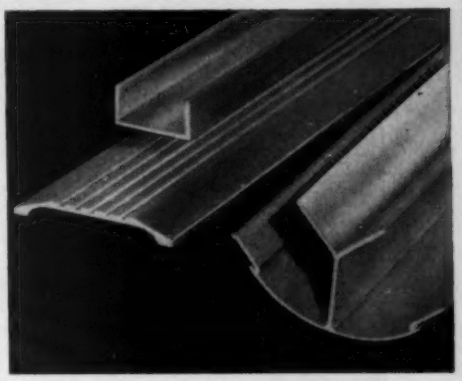
ALUMINUM COMPANY OF AMERICA



SCREW MACHINE STOCK—All free-cutting alloys plus the higher-strength alloys—24S, 61S and 75S.



WELDING AND SOLDERING SUPPLIES—Welding and brazing wire, welding and brazing flux, solder flux, solder.



EXTRUDED SHAPES—Miscellaneous extruded shapes such as angles, channels, half rounds, quarter rounds, thresholds, truck corners, structural members, etc. Round, square and rectangular bars.

They have these 12 basic advantages and scores of others

- Light Weight
- High Resistance to Corrosion
- High Electrical Conductivity
- High Conductivity for Heat
- High Reflectivity for Light and Radiant Heat
- Workability
- Non-Toxic
- Strength in Alloys
- Non-Sparking
- Non-Magnetic
- Appearance
- High Scrap and Re-Use Value

They are available from your local ALCOA sales office, distributor or jobber subject to government regulations

For help in interpreting government regulations and all possible co-operation in filling your rated orders, call on your local Alcoa sales office, distributor or jobber. You'll find them listed under "Aluminum" in your classified phone book.

With them goes the skill in fabricating, assembly and finishing of 64 years of aluminum knowledge

This know-how plus the help of the world's greatest aluminum research and testing facilities is available to you through your local Alcoa sales office.

There are no restrictions on the aid and know-how that go with them

For technical literature and movies to train your personnel, for the personal help of Alcoa sales engineers, for the long-range research and testing of aluminum for your products, call your local Alcoa sales office.

ALUMINUM COMPANY OF AMERICA
1809E Gulf Building • Pittsburgh 19, Pa.

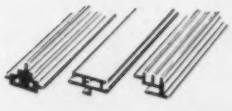
ALCOA ALSO MAKES PRODUCTS TO CUSTOMER SPECIFICATION



CASTINGS
sand, plaster, permanent mold and die



FORGINGS
drop, hammer and press forgings



EXTRUDED SHAPES



IMPACT EXTRUSIONS



SCREW MACHINE SPECIALTIES
special fasteners and screw machine parts

ALCOA *first in* ALUMINUM

PRODUCTION

Specialists



An indispensable factor in the uniform high quality of MILFORD Saw Blades is the practical know-how of MILFORD Production Specialists. In every department are trained supervisors—experienced craftsmen who have the added advantage of the accumulated skills and knowledge gained in our over 75 years of one-product specialization. The unmatched capability of these specialists has, to a large degree, made MILFORD Blades truly the . . .

STANDARD OF QUALITY THE WORLD OVER

THE HENRY G. THOMPSON & SON CO.

SAW BLADE SPECIALISTS FOR OVER 75 YEARS

NEW HAVEN 5, CONNECTICUT

PROFILE AND BAND SAW BLADES, HAND AND POWER HACK SAW BLADES



ORDER MILFORD BLADES FROM YOUR INDUSTRIAL DISTRIBUTOR

Production Tools and Equipment

(*Continued from page* 368)

N. J., and on a 22" steel spur gear the production time was decreased to 2 hrs. and 30 minutes as against former production time of ten hours. The shaper handles all sizes up to 36" pitch diameter limit.

COST SAVING ITEM—469

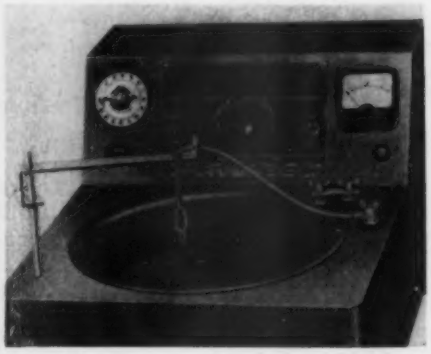
Unit Blast Saves Foundry $144 Weekly



Installation of a 28-cu.ft. capacity unit blast in large midwestern foundry permits one man to do the work of three. This unit blast cleans 500 tons of green work and 250 tons of annealed castings a month and saves the company $144 a week. The unit cleans 1500 to 2000 pounds of 40 to 600 pound castings at a time by automatically rolling them under a centrifugally hurled abrasive stream so that all surfaces are exposed to the cleaning jet.

COST SAVING ITEM—470

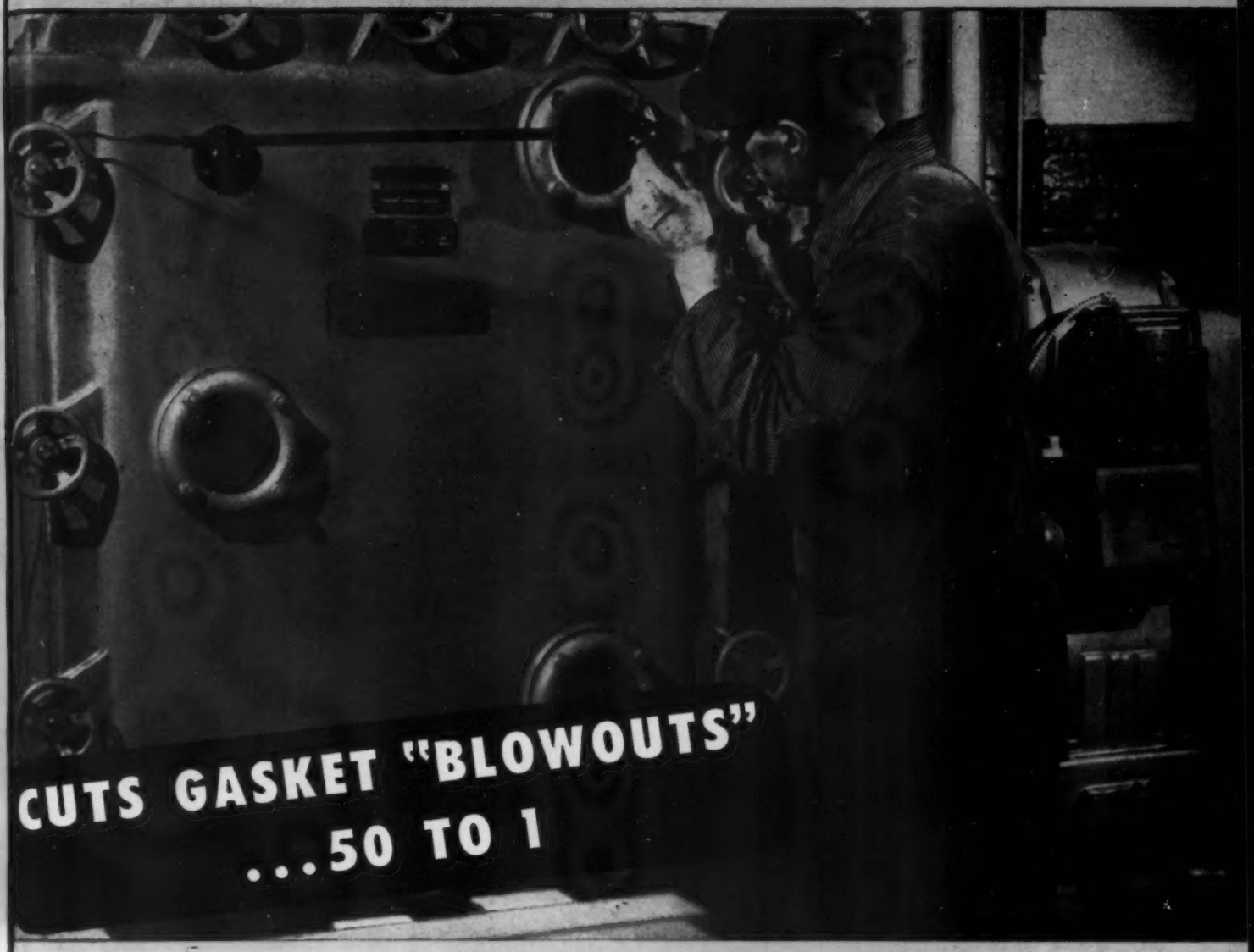
Slotting Saw Life Increased 900%



A large Chicago screw machine products company reports that high speed slotting saws used on a slabbing operation on an automatic,

(*Please turn to page* 374)

QUAKER *Production-eered** PACKING



QUAKER RUBBER PACKING

GIVES LONG, CONTINUOUS SERVICE . . . FREE FROM HIGH REPLACEMENT COSTS

Plagued by constant gasket "blow out" trouble on a high pressure creosoting cylinder, this Texas processing plant used to take it on the chin. Gaskets were replaced every 3 weeks. While the production curve took a nose dive, replacement costs soared sky high. Then they discovered the answer—tough rubber packing "Production-eered" for the job by QUAKER.

Each QUAKER gasket has lasted three years or more —sealing against 200 lbs. pressure at 212° F. Savings: labor plus one QUAKER gasket—as compared to down-time and installation of some 50 previous gaskets.

Just one more example of QUAKER "Production-eering" at work. Let an experienced QUAKER "Production-eer" help you boost production, cut costs with QUAKER "Production-eered" packing, hose, belting and molded rubber products.

***Production-eering**—Every Quaker Industrial Rubber Product is "Production-eered"—engineered to provide maximum life, efficiency and production on each type of installation. Quaker "Production-eers" are ready to recommend the right rubber product for the job. For timely production tips get the new free booklet on "Production-eering for Industry." Write today.



Get This Book

QUAKER RUBBER CORPORATION

DIVISION OF H. K. PORTER COMPANY, INC.

PHILADELPHIA 24, PA. • BRANCHES IN PRINCIPAL CITIES



Preferred power on cement surfacing and concrete working machines — the world's most widely used single-cylinder gasoline engine on tools, machines, appliances used by the construction industry, railroads, oil fields, other industries, and on farms and farm homes.

You know you have the *right* power when the power is Briggs & Stratton — the accepted leader in single cylinder, 4-cycle, air-cooled gasoline engines. Briggs & Stratton Corporation, Milwaukee 1, Wisconsin, U.S.A.

In the automotive field Briggs & Stratton is the recognized leader and world's largest producer of locks, keys and related equipment.

Production Tools and Equipment

(*Continued from page 372*)

dulled after 20 hours, enough to leave a fin at the end of the cut. By applying .0001" of industrial chrome plate to the saws, the average run increased to 180 per side, or a total of 360 hours per saw. Average plating time using the industrial chrome plating equipment is only 3-½ minutes per saw. Saws and other cutting tools are plated in company shop on unit illustrated eliminating the expense and time lag of job shop plating.

COST SAVING ITEM—471

Centerless Belt Grinding Does Better, Faster Job



In the production of the dust tube shown in the centerless belt grinder, the problem was to rough grind and finish grind mild steel tube to a tolerance of plus or minus .002". Previously the job had been turned on a lathe and the grinding performed while the work turned; finish was objectionable, tolerances difficult to hold, and job was slow and costly. The job was transferred to the centerless belt grinder. First operation was a rough grind; second operation the finish grind. This two-step operation produced 53 pieces per hour.

COST SAVING ITEM—472

YOU WILL FIND NEW SUPPLY-SOURCES LISTED EVERY MONTH IN PURCHASING'S CLASSIFIED SECTION! SEE PAGE 510

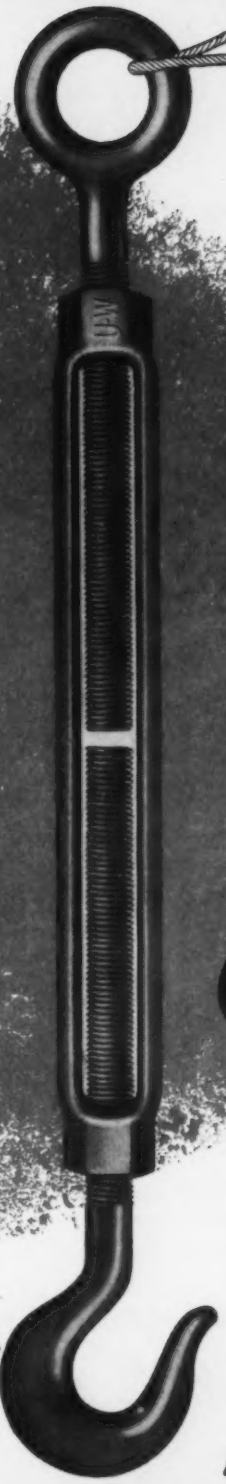
Specify UPSON-WALTON Fittings

Heads are drilled and tapped in perfect alignment so that end fittings pull evenly, assuring maximum strength and safety.

Either a bar or a wrench can be safely used to set up tension, since reins are constructed with ample section and rigidity.

Weldless, drop-forged steel, hex end turnbuckle bodies are made in accurate dies to assure uniformity, dependability, and safety.

Drop-forged flattened steel hook has extra thickness at the point of greatest stress. End fittings are straightened before threading for free turning with close tolerances.



ENGINEERED FOR SAFETY



See your nearby distributor for quick and efficient service from stock. Write for free catalog on wire rope fittings.



THE UPSON-WALTON COMPANY

12500 Elmwood Avenue • Cleveland, Ohio

NEW YORK • CHICAGO • PITTSBURGH

MANUFACTURERS OF

FITTINGS • TACKLE BLOCKS • WIRE ROPE

YOU CAN DEPEND ON UPSON-WALTON'S 81 YEARS OF EXPERIENCE



IRVING KROLL

Traffic Manager,

PARKER-KALON CORPORATION

Says...

4 times as many of my customers now specify Express because...

"they want to be sure of prompt, safe delivery! I've yet to receive a delivery complaint about Express service from a customer.

"When it's up to me, I specify Railway Express because it's the most convenient, dependable shipping service available. Size or weight of a shipment is never a problem—whether it's 25 lbs. or 500. Every shipment is picked up promptly . . . I get a receipt . . . the Express Man does the rest."

Today, more shippers and receivers are turning to Express for the service they need. They have compared . . . and agree that no other shipping service offers all these advantages for *only one charge!*

- ★ practically no size or weight limit
- ★ Express charges collect, prepaid or paid-in-part
- ★ $50 valuation allowance at no extra cost
- ★ pickup and delivery in all cities and principal towns
- ★ receipt given to shipper and one taken from receiver
- ★ Air Express for extra speed

For the Best Buy In Shipping Service Today . . .

RAILWAY EXPRESS AGENCY

ALWAYS ASK THE EXPRESS MAN

How Much Will These Norton Wheels Cut Your Weld Grinding Costs?



YOU'LL BE SURPRISED at how much Norton portable grinding wheels will cut your costs. No other wheels *hug that work* so closely . . . because no other wheels are so uniform, so well balanced. That means more continuous contact with the work . . . more metal removed per man-hour. Try Norton portable grinding wheels and see for yourself.

Ask your nearby Norton distributor about cost - cutting Norton portable grinding wheels. He's listed under "Grinding Wheels" in your classified telephone directory. Or write direct to Norton Company, Worcester 6, Mass. Distributors in all principal cities. EXPORT: Norton Behr-Manning Overseas Inc., Worcester, Massachusetts, New Rochelle, New York.



NORTON WHEELS ON YOUR PORTABLE GRINDERS — straight and cup — mean lowest grinding costs on your heavy duty jobs because they combine fast cutting action with long life. And they do their work with a very minimum of operator fatigue.



NORTON REINFORCED HUB WHEELS are the safest, most durable weld grinding wheels you can use. And the two types — the rigid BD and the more flexible BFR — make it possible to handle anything but the more severe jobs.

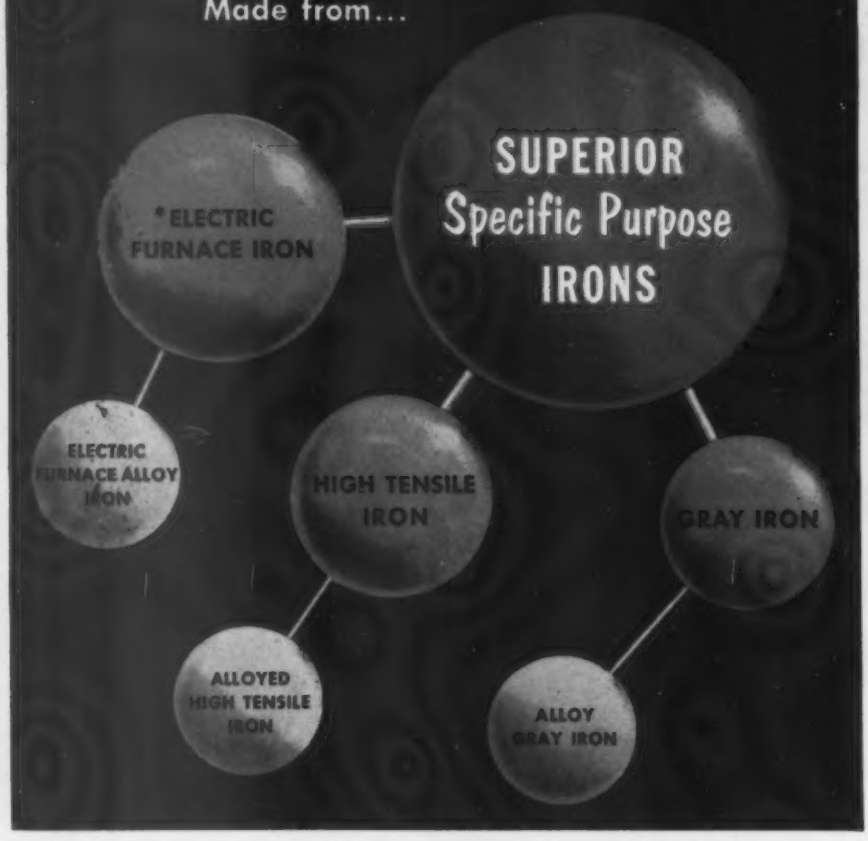
NORTON ABRASIVES

Making better products to make other products better

For the REALLY TOUGH Production Casting Jobs

Superior Special Purpose Castings

Made from...



Put these outstanding PRODUCTION CASTING FACILITIES to work for You...TODAY!

- Three mechanized continuous mold and sand-handling conveyor systems...
- Core capacity to serve all molding stations for 250 tons or more of melt daily...
- Quality Controls that extend from sand to shipment—patterns to palletizing...
- Tensile strengths up to 60,000 psi in castings weighing 6 to 600 pounds.

BEST EVIDENCE of Superior's completely dependable facilities and services are the prominent manufacturers in many industries whose castings, year after year, are engineered and produced by Superior. It could pay you, too, to consult with Superior...today!

* Write today for interesting booklet describing Superior's unique Electric Furnace facilities.

and here's proof—



TRANSMISSION COVER—smooth appearance, tight fitting, easily machineable. Made of sound, rugged superior gray iron.

SUPERIOR FOUNDRY, INC.

3542 EAST 71st STREET • CLEVELAND 5, OHIO

VUlcan 3-8000

SUPERIOR

Member of
American Foundrymen's Society
Gray Iron Research Institute
Gray Iron Founders Society

Machine Tools

(*Continued from page* 149)

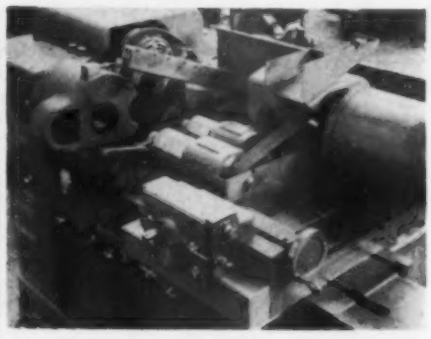
875 More Pieces per 8-hr. Shift



A New York State manufacturer was producing a slotted part on a Davenport 5-spindle automatic. By using an improved type of cutting oil, he was able to increase his tool life materially. On the slotting saw, for example, four regrinds in 24 hours were reduced to three. Cutting-off tool life was extended from two to six hours. The resulting reductions in down-time enabled the machine to produce an extra 875 pieces per 8-hour shift and, of course, saved considerable in regrinding costs.

COST SAVING ITEM—473

Save 20 Seconds Per Part

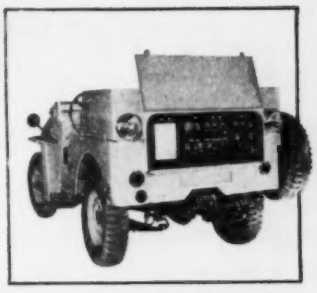


Proper application of plunge grind, facing and indexing of workhead cross slide enabled manufacturer to save a third of a minute on each part ground. The work, a steel gear, is located in a diaphragm chuck and clamped on pitch line by three pins. Two diameters and face are ground with a double wheelhead set on new model internal grinder. The smaller 1.9205"-

(*Please turn to page* 380)



Meet a power generator with "legs"



Unique in its field, this all-purpose power package *propels itself* over the roughest terrain—another **outstanding development of Lycoming research and precision production.**

Now, the same self-propelled generator that starts jets and bombers offers its mobility and versatility for numerous industrial purposes—air compression, emergency power, pumping and other applications. Generating 30 volts, developing 120 h.p., dependable in temperatures from −65°F. to +135°F.—this many-purpose unit moves under its own power . . . and may be used for a towing vehicle as well.

If you have an application for an air-cooled power package of this type—or if your need is precision machining, product development, or high-volume production—call on Lycoming. Long famous for aircraft engines, Lycoming also meets the most exacting and diverse requirements in many fields, both military and industrial.

Whatever your problem—look to Lycoming!

AIR-COOLED ENGINES FOR AIRCRAFT AND INDUSTRIAL USES • PRECISION-AND-VOLUME-MACHINE PARTS • GRAY-IRON CASTINGS • STEEL-PLATE FABRICATION

LOOK TO **LYCOMING** FOR RESEARCH FOR PRECISION PRODUCTION

LYCOMING-SPENCER DIVISION, WILLIAMSPORT, PA.
BRIDGEPORT-LYCOMING DIVISION, STRATFORD, CONN.

AVCO MANUFACTURING CORPORATION



CURED A PRODUCTION HEADACHE

This electrically heated rubber pad has reduced the time required for re-soling shoes in the famous Lamac Press by as much as 75%.

Continental made this improvement possible because it was able to develop a rubber compound that withstands the sustained heat generated by the electrical heating element. Continental also solved the equally difficult problem of positioning this heating element so that it would not shift and "short" itself when the pad was molded.

The success of this development is another example of the specialized assistance in rubber which Continental offers to design and production engineers.



LET US SEND YOU THIS CATALOG

This new engineering catalog lists hundreds of standard grommets, bushings, rings and extruded shapes. It will be a valuable addition to your working file. Send for your copy today or . . .

See our Catalog in Sweet's File for Product Designers

MANUFACTURERS SINCE 1903

CONTINENTAL

RUBBER WORKS

1983 LIBERTY BOULEVARD • ERIE 6, PENNSYLVANIA

BRANCHES

Baltimore, Md.	Cleveland, Ohio	Kansas City, Mo.	Pittsburgh, Pa.
Boston, Mass.	Dayton, Ohio	Los Angeles, Calif.	Rochester, N. Y.
Buffalo, N. Y.	Detroit, Mich.	Memphis, Tenn.	St. Louis, Mo.
Chicago, Ill.	Hartford, Conn.	New York, N. Y.	San Francisco, Calif.
Cincinnati, Ohio	Indianapolis, Ind.	Philadelphia, Pa.	Syracuse, N. Y.

(*Continued from page* 378)

1.9210" bore is ground first in straight reciprocating cycle. The 2.8760"-2.8765" hole is then plunge ground and bottom face ground at the same time. Double diamond dressing unit trues the periphery of both wheels simultaneously twice during each machine cycle. A hand operated face dressing device is used prior to the facing.

COST SAVING ITEM—474

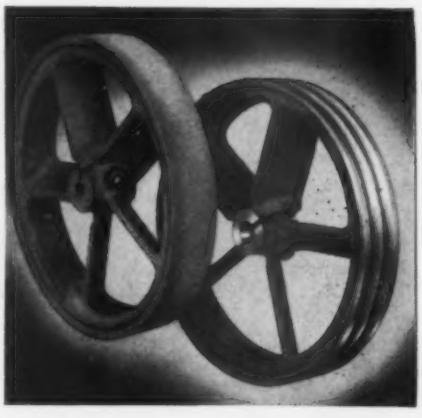
Save 7 Wheel Dressings and Power



Metal. HSS die block. Operation, finish grind. With soluble oil the feed was .004" and wheel required dressing every hour with .008 removal. Change was made to all chemical metal working solution. Results—increased feed to .012", dressed wheel every 8 hours with .0065" removal; also, motor load was reduced 15 amperes.

COST SAVING ITEM—475

V-Belt Pulleys Finished 66% Faster

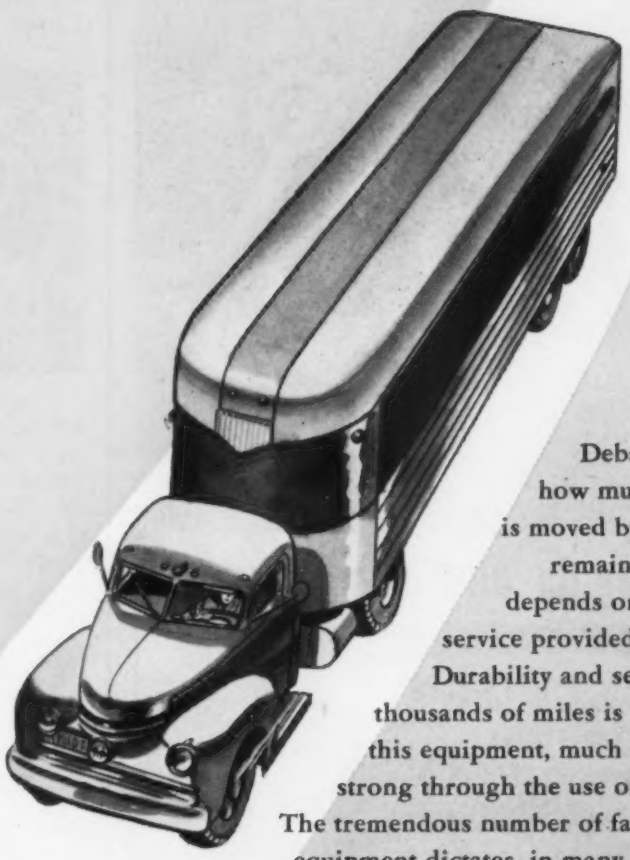


This is another case where modern equipment practically pays for itself. The pulley job was formerly done with hand equipment in 39 minutes. It is now handled on automatic turret lathe in 13 minutes floor-to-floor time. The operation includes rough and finish turning

(*Please turn to page* 382)

Mile After Mile . . . "

Wherever roads stretch over the countryside linking village, town, city, seaport—there you will find the familiar welcome sight of the Truck-Trailer.



Debate may wage warm as to how much of the nation's freight is moved by Truck-Trailer. The fact remains that much of the nation depends on the fast and economical service provided by these sturdy vehicles. Durability and service over thousands and thousands of miles is the accepted standard for this equipment, much of it assembled and made strong through the use of Sterling Bolts and Nuts. The tremendous number of fastenings required for this equipment dictates, in many cases, the selection of the Sterling Bolt Company as a primary source because Sterling Bolt, for more than 30 years, has been a dependable supplier of bolts and nuts to the volume production industries—and this includes the great Truck-Trailer Industry.

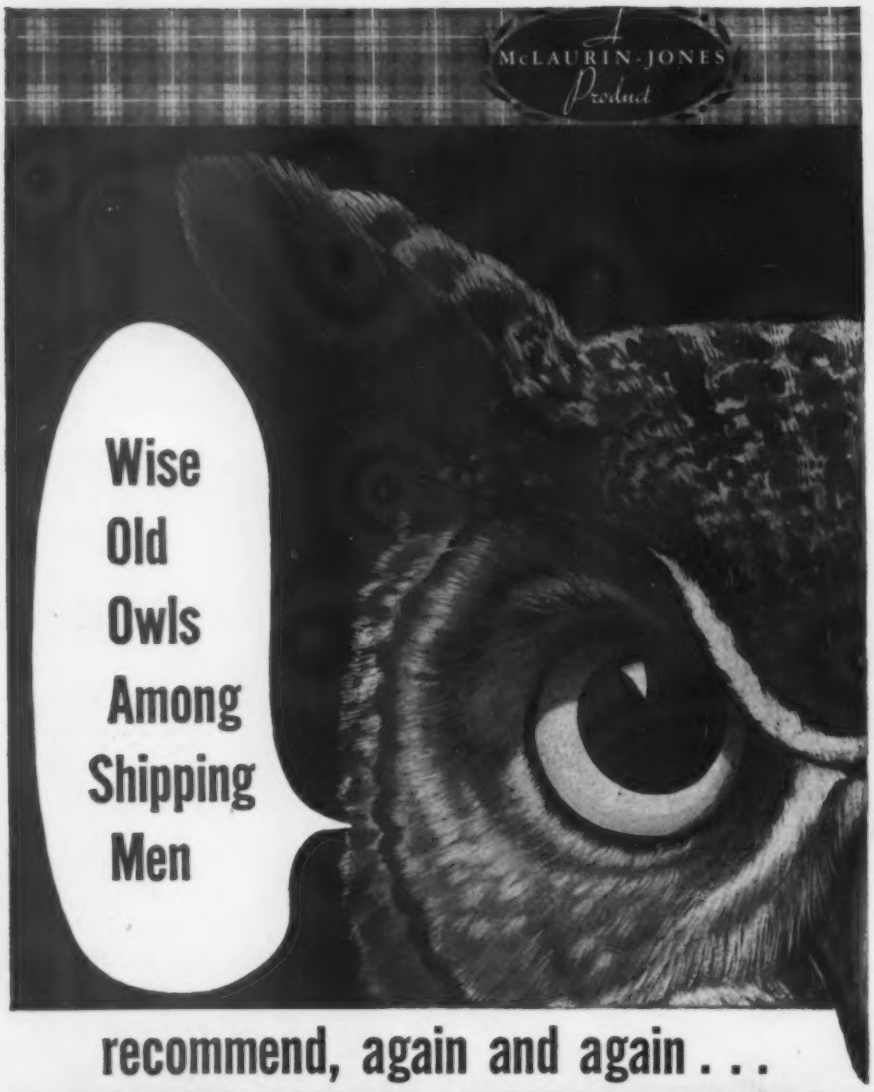
Sterling Bolt Company is a member of the Truck-Trailer Mfgrs. Association.



STERLING BOLT CO.

General Offices: 369 W. Erie St., Chicago 10, Illinois

Cincinnati, Indianapolis, Milwaukee, St. Louis



recommend, again and again . . .

TANGLEFOOT
SEALING TAPES
SUPER STANDARD · STANDARD

BLUE STAR
SEALING TAPES
COMET SUPER STANDARD · SUNRISE STANDARD

Shippers know these two "toughies" — made with strong, flexible, long-fibred kraft and refined animal glue — offer maximum closure protection at a minimum cost.

Your paper merchant will gladly show you samples today. Available plain or imprinted in a wide range of attractive colors.

The Perfect Closure for
- Shutting out Dirt
- Resisting Moisture
- Cutting Expense
- Ease of Application
- Reinforcing Cartons
- Reducing Pilferage

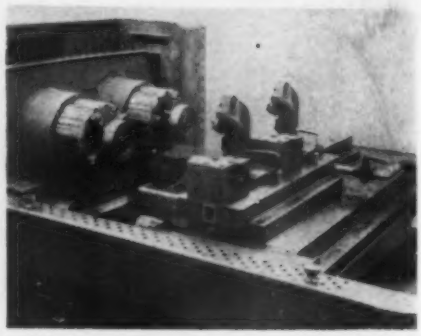
McLAURIN-JONES CO.
MAKERS OF FAMOUS GLASKRAFT SEALING TAPE, GLASKRAFT STRAPPING TAPE, SOLSEAL WATERPROOF TAPE, IDEAL STAY TAPE, HYFLEX SISAL TAPE AND CAMBRIC BOX TAPE
BROOKFIELD, MASS. Offices in: New York — Chicago — Cincinnati — Los Angeles
Mills located at Brookfield & Ware, Mass. — Grand Rapids, Mich. & Homer, La.

(*Continued from page* 380)

the OD and the two grooves, side facing, rough and finish boring, chamfering of the hole and spot facing of the hub. Not only is the machining time reduced, but because of the automatic cycle of the machine the operator has plenty of free time to handle a manually operated machine.

COST SAVING ITEM—476

Clutch Hub Production Doubled



Previously these parts, clutch hubs, were processed by two machines where now one does the job in a single automatic cycle. Fixture and tooling equipment consist of two air-operated diaphragm chucks on each boring head while a cross slide with tool block setup is mounted on the machine table. Work is mounted on a splined arbor which is held in the diaphragm chucks while the OD is turned and chamfered and both faces are generated.

COST SAVING ITEM—477

Spindle is Finished 60% Faster

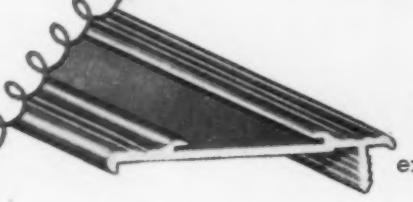


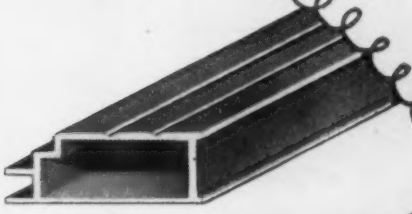
The spindle lying on machine bed in accompanying illustration required grinding after hardening, of its six equally spaced 1″ holes. Formerly it was mounted in a V-

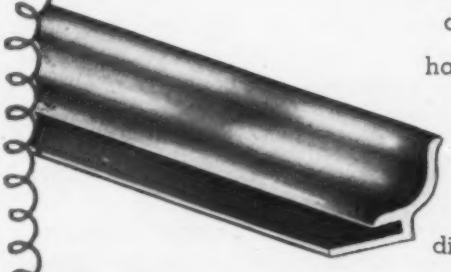
(*Please turn to page* 386)

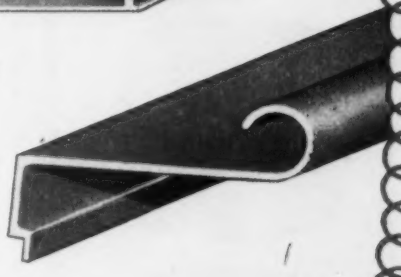


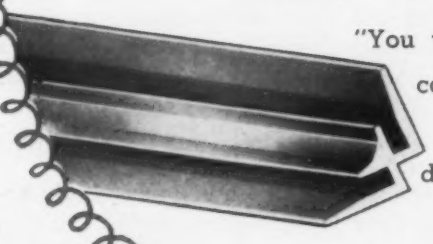
"We have found Youngstown Manufacturing to be a reliable source for Aluminum Extrusions"













"You name the aluminum extrusion (or shape) you need and Youngstown Manufacturing can deliver. Chances are, they will have a die for the extrusion you need . . . (more than 400 on file). However, if you need assistance or engineering help on designing a special die, they have the manpower to do the job.

"You will find Youngstown Manufacturing can supply the aluminum extrusions you want, in quantity, on a dependable delivery schedule. Send prints, parts or information to Youngstown Manufacturing for prompt quotation."

SUPERIOR ALUMINUM EXTRUSIONS

Buy from the BIG NAME IN ALUMINUM EXTRUSIONS

YOUNGSTOWN MANUFACTURING, INC.

66-76 SO. PROSPECT STREET

YOUNGSTOWN, OHIO

REDUCES INVENTORY

SAVES TIME

SAVES MONEY









Underwriters' approved as Type USE. Accepted by leading utilities and industrials. CAA approved for airport lighting under Specification L-824.

RoMarine - RoPrene®

All-Purpose Power Cable



RoMarine-RoPrene offers a way to reduce inventory because of its versatility and its adaptability to many uses . . . *one cable type for a variety of applications installed direct in earth, in ducts, on racks or aerially.* Standardizing on RoMarine-RoPrene conserves scarce copper, eliminates expensive and heavy to handle lead sheath. It is the modern all-purpose power cable.

That is only one reason why you should specify RoMarine-RoPrene. The other is its dependable high quality.

RoMarine-RoPrene is a combination of RoMarine . . . a specially compounded rubber insulation, highly resistant to moisture and heat, and RoPrene . . . a durable Neoprene sheath resistant to flame, moisture, oils, soil acids and alkalies, abrasion and weather. Designed for an operating temperature of 75° C., RoMarine-RoPrene is available for services up to 5000 volts. It is highly recommended for secondary network circuits, underground entrances, street lighting, station control circuits and industrial power systems.

RoMarine-RoPrene is but another example of how Rome Cable research and engineering can solve your purchasing problems. Sales offices are conveniently located throughout the country. We will welcome the opportunity of serving you. It will pay you to know more about Rome Cable's facilities. Write today for the 40 page book, "The Story of Rome Cable Corporation."

It Costs Less to Buy the Best

ROME CABLE CORPORATION, DEPT. P-5, Rome, N. Y.
Please send me a complimentary copy of "The Story of Rome Cable."

Name ..... Title .....

Firm ..... Address .....

City ..... Zone ..... State .....

ROME CABLE
Corporation
ROME · NEW YORK
and
TORRANCE · CALIFORNIA



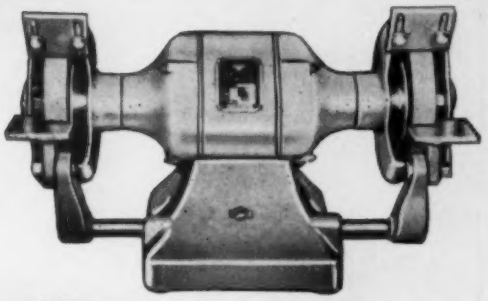


"Dyna-Mite"® Drills — unexcelled for high-speed production. Light weight. Packed with power. Capacities from ¼" to ⅜". Also other production drills up to 1".



High Speed Die Grinder. 25,000 r.p.m. A light and compact new tool. Vibrationless, cool-running.

Heavy Duty Grinders. Super powered, precision-balanced motors and over-size labyrinth-sealed ball bearings for quick starting and smooth operation under continuous heavy loads. Sizes from 1/3 to 1 h.p.



9 means to the same end—

LOWER COSTS

"Labor costs cut 64%!" . . . "Production doubled!" . . . "Rejects and spoilage practically eliminated!"

These are typical of the enthusiastic comments by production men when Millers Falls electric tools go to work making money for their companies.

You'll find many spots in your plant where these rugged, dependable tools can do the same for you. Every one is engineered to be the outstanding performer in its field. Every one is built with Millers Falls traditional workmanship for long-lived, trouble-free service.

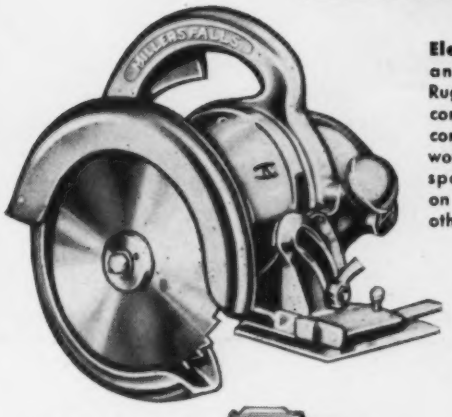
Few investments you can make will pay off so fast in lower costs. Let us give you full details and a free demonstration on your own work.

Millers Falls Company • Greenfield, Mass.

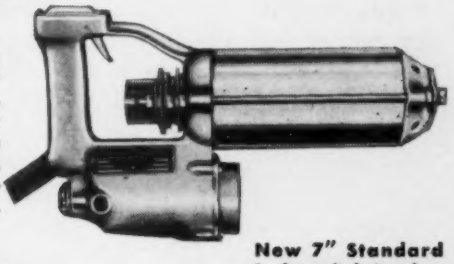
MILLERS FALLS TOOLS

SINCE 1868 ®

The Mark of Superiority



Electric Saws. 7-, 9- and 10-inch models. Ruggedly built, light and compact. Designed for continuous production work on wood—or, with special abrasive discs, on metal, concrete and other materials.



Electric Hammers. Only one moving part — the hammer itself. No motors, gears, shafts to wear out. 3600 blows a minute. Long-lived, dependable. Capacities from ⅝" to 2".



New 7" Standard Industrial Sander. Compact and light (only 7½ lbs.). Ample power for continuous production use. Particularly well adapted for the new, high-performance, laminated phenolic grinding wheels and discs.



Screw Drivers and Nut Runners with Millers Falls patented super-sensitive "Adjustomatic"® Clutch. Unmatched for delicate assembly work. Also available with new "Positive Clutch" — ideal for operations requiring variable torque.



Portable Grinders for heavy duty service — snagging castings, grinding welds, leveling rivets and pins, etc. Totally enclosed motors keep all internal parts safe from dust and grit.

Polishers, Sanders, Grinders. Versatile, high-powered tools to speed up cleaning, surfacing and finishing on a wide variety of production and maintenance operations.



"Can't you think of anything but your new Allison Catalog!"

If abrasive cutting is already a production function in your plant . . . or if you're just considering its possibilities . . . you will want a copy of the NEW Allison Catalog. Information on both wet and dry cutting of various materials . . . information on abrasive cutting machines and their maintenance . . . recommendations for the selection of Allison Abrasive Wheels . . . written by *specialists in abrasive cutting for over 30 years!* Send coupon today . . . your copy will be mailed promptly.



Allison
ABRASIVE CUTTING WHEELS

THE TOUGHER THE CUTTING JOB . . .
THE BETTER THE OPPORTUNITY FOR
abrasive cutting

9ALB1

THE ALLISON COMPANY
259 Island Brook Ave., Bridgeport 8, Conn.
Gentlemen: Please send me a copy of your new catalog.

*Name*_____
*Company*_____
*St. & No.*_____
*City*_____ *State*_____

Machine Tools

(*Continued from page* 382)

block and holes were positioned by use of indicators and size blocks. Production time was cut 60% when the part was held in a super-spacer which provided precision indexing and instant hole location. Result—better, faster grinding at less cost per piece.

COST SAVING ITEM—478

Planned Tooling Pays Off



Careful planning of tools permits machining six different parts of the same assembly on one machine, the work being done on a ram type turret lathe. The air chuck is adapted with special fixtures for both internal and external holding. The various parts are illustrated.

COST SAVING ITEM—479

90% Reduction in Machining Time



The job, fork part 6″ x 2″ OD, made from a 4130 chrome-moly forging heat treated to a hardness of 125,000-145,000 psi before machining. Former production called for 30 mins. on turret lathe for rough cut, 10 mins. on engine lathe for semi-finish cut, and 10 mins. finish on grinder; total 50 minutes. Job is now done in five minutes on lathe that uses single tractor-controlled running tool which speeds production, slashes tool costs, cuts tool change and set-up time, and slashes time for subsequent grinding operations. Set-up time for this

(*Please turn to page* 388)

Why accept this?... when you actually want this?...



CARMET blanks are preformed to your order!

ATTENTION INDUSTRIAL DISTRIBUTORS:

Ask us about handling CARMET standard tools and blanks in your area. Some territories are open. Write, phone, or wire.

ADDRESS DEPT. P-29

Above are shown two carbide metal rolls of identical composition. The one at the left cost the user about nine times as much as the one at the right. That differential was due solely to grinding vs. non-grinding. The plain face needed serrating, whereas the ready-toothed face needed nothing.

In many uses where tolerances are not too critical, CARMET blanks *preformed* to your specifications are ready for service without additional costly grinding. On jobs where finish grinding is necessary, the quality of Carmet's preforming holds grinding stock to a minimum.

Hundreds of special shapes can be preformed in Carmet. For practical suggestions that fit your needs, call or write your nearest A-L representative. ● *Allegheny Ludlum Steel Corporation, Carmet Division, Wanda & Jarvis Avenues, Detroit 20, Michigan.*

For complete MODERN Tooling, call

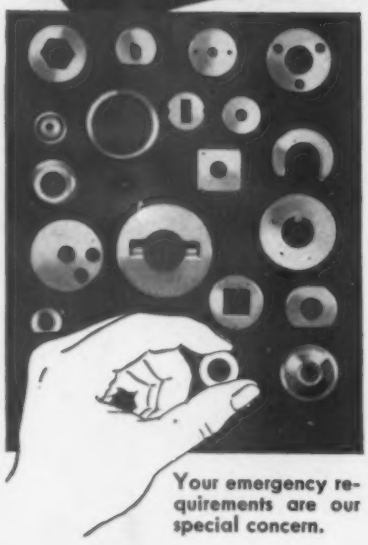
Allegheny Ludlum

W&D 4048

AL FINE TOOL STEELS SINCE 1854

Standard ..Specials

STEEL WASHERS FOR EVERY NEED



A DEPENDABLE SUPPLIER FOR 38 YEARS . . .

Your requirements for standard and special steel washers are sure to be satisfied at Joliet. A bank containing thousands of special dies in many shapes and forms, 9/32" to 8" O.D., gauges No. 28 to 3/8", stands ready to answer your needs. A VARIETY OF FINISHES IS AVAILABLE to meet your special needs, including: Electro-plating, Galvanizing, Parkerizing, and Cyanide hardening.

After All!

THERE'S NO SUBSTITUTE FOR QUALITY AND SERVICE

Your emergency requirements are our special concern.

203 CONNELL AVE.
JOLIET, ILLINOIS

JOLIET WROUGHT WASHER CO.

Do the BIG JOBS *Faster* with this Rugged *Mall Drill*



Model 381
⅜" Capacity

Here's power aplenty for any operation within its working capacity. "Centerized" balance makes this heavy-duty power tool easy to hold and maneuver in any position. Trigger switch for instant power control at finger pressure. Equipped with Jacobs geared chuck. Capacity ⅜" in metal, ¾" in wood. Universal motor operates on 115 V. Many practical attachments available.

Ask for latest Mall Drill Catalog.

40 Factory-Owned Service Warehouses, Coast to Coast, To Serve Our Customers and Thousands of Dealers.



Model 145T Mall Drill

Cap. ¼" in metal — ½" in wood. Equipped with Jacobs geared chuck & key. 115V. AC-DC

Mall TOOL COMPANY

7791 S. Chicago Avenue
Chicago 19, Illinois

Clip and mail this CHECK LIST for details



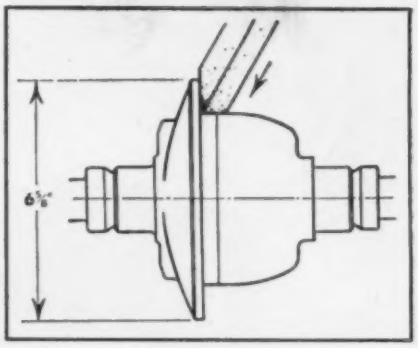
Machine Tools

(*Continued from page* 386)

job has shrunk from more than 3 hours to less than 20 minutes. One machine has replaced three and only one operator is required.

COST SAVING ITEM—480

Production Up 90%; Improved Finish



Automobile manufacturer reports almost doubled output of differential housings by changing from former grinding method. Previously the job was done with a conventional wheelbase using a bumping operation to grind the shoulder, calling for two operations to grind two surfaces. Both the diameter and the shoulder are now ground in a single operation with new angular wheelbase grinder, which also provides a highly superior finish on the two surfaces. Stock removal: Diameter—.010; adjoining shoulder —.005". Production 135 per hour.

COST SAVING ITEM—481

New Lathe Eliminates Subcontracting

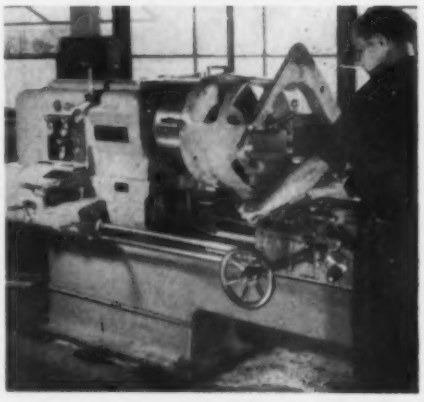
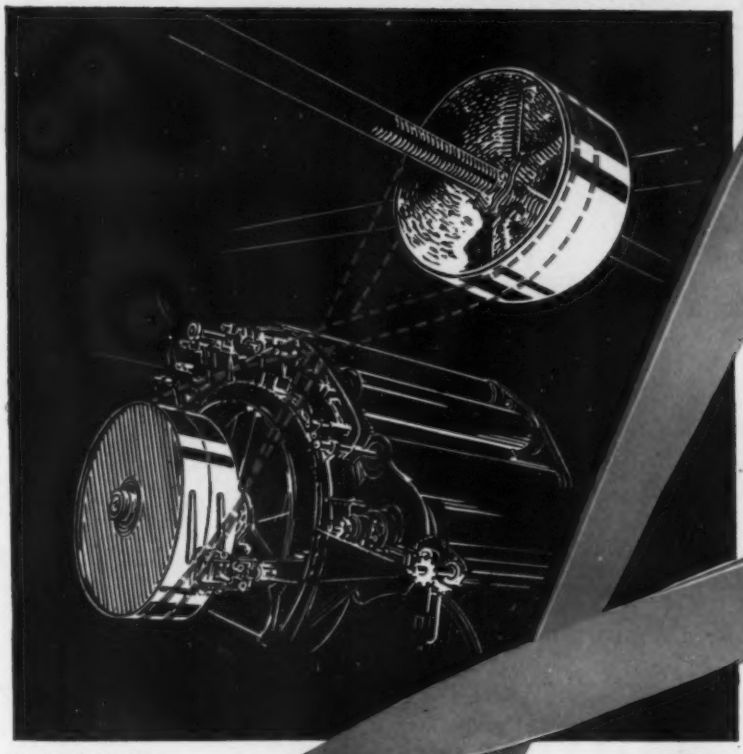


Illustration shows 16"/38" sliding bed gap lathe used by The Mixing Equipment Co., Rochester, Minn., for turning a variety of

(*Please turn to page* 390)

your pulleys will drive your machines only as well as your belts drive your pulleys



Graton & Knight HEART OAK leather belt on main cross shifter drive to wool card.

if you want more production, get GRATON AND KNIGHT leather belting for more production-power

Get a Graton & Knight "Live Traction" Leather Belt — because it is engineered to transmit maximum uniform horsepower at correct speeds and sustained R.P.M. — with ample reserve for load peaks, and "fluid drive action" to absorb starting torque and load shocks.

For tough conditions, cross, shifter and idler drives, **HEART OAK** top grade center stock oak tannage. For short center, small pulley, cone pulley and serpentine *precision* drives, **RESEARCH®** premium quality. For ambient conditions (steam, oil, water, acid and alkali fumes) **SPARTAN®** combination tannage . . . Whatever your conditions, you'll get more production-power with Graton & Knight *Engineered* Leather Belting.



and *keep* your belts pulling for you

Stop belt slippage — prolong belt life with GRAKO® CLEAR Belt Dressing, result of 100 years experience in leather tanning and belt manufacture. Preserves and lubricates the fibres. Pint, quart and gallon cans — 5-gallon and 50-gallon drums. Send for circular.



New Belting Catalog and Manual

shows how to get more production-power with leather belting. Our representative will deliver your (free) copy upon request.

GRATON & KNIGHT COMPANY
356 Franklin St., Worcester 4, Mass.

second century G and K **engineered leather belting**
for more production-power

GRATON AND KNIGHT Estab. 1851

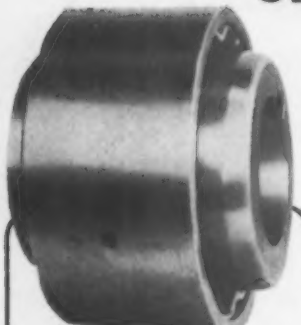
Sier-Bath
Flexible
GEAR COUPLINGS...



...Now Used on
SPENCER TURBO-COMPRESSORS

Size ⅞ Sier-Bath Coupling connecting the 5 HP, 3500 RPM motor with the compressor fan of a Spencer Turbo-Compressor, rated 450 CFM at 24 oz. pressure.

NEW, REVOLUTIONARY, Sier-Bath COUPLINGS:

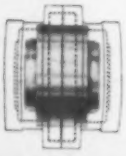


ONLY 7 PARTS—



ASSEMBLED, UNCOUPLED IN SECONDS!

3/5 USUAL SIZE!
1/2 USUAL WEIGHT!



Sier-Bath Gear Coupling compared with two major conventional types of same shaft size, HP rating.

- Allow More Compact Designs
- Reduce Assembly Time
- Slash Down-Time
- Cut Equipment Wear

Join the fast-growing list of machinery manufacturers and users now capitalizing on these advantages. Sier-Bath Couplings *eliminate* nuts, bolts, flanges—require no torque wrenches or other special tools. Assembly is accomplished by hand—uncoupling requires only a screw driver. Alignment checks are fast, simple—and the units connected can be run separately by simply sliding the one-piece sleeve over the opposite hub. Corrosion-proof . . . safer for men and machines . . . longer, trouble-free life . . . Sier-Bath Coupling cut costs, do the job better! DISTRIBUTORS IN PRINCIPAL CITIES.



WRITE FOR BULLETIN—gives installation photos, advantages, specs for standard, vertical mill motor and floating shaft types—sizes from ⅞ to 6, HP 4 to 550. (Special sizes and types on request.)

Sier-Bath GEAR and PUMP CO., Inc.
Founded 1905 Member A.G.M.A.

9241 HUDSON BLVD., NORTH BERGEN, NEW JERSEY

Also Manufacturers of Precision Gears and Screw and Gearex Rotary Pumps.

Machine Tools

(*Continued from page* 388)

work from short parts with irregular swings up to 33" to shafts as long as 14' in materials from brass to stainless steel. Work involves intermittent cuts, heavy roughing cuts, smooth finishing cut to tolerances as fine as .001". When sliding bed is closed, lathe is used as conventional heavy duty engine lathe. Purchase of the lathe enabled The Mixing Equipment Co. to handle in their own shop workpieces that formerly had to be subcontracted.

COST SAVING ITEM—482

Now a 34 Minute Job



The illustration shows a conventional motor shaft which is being machined on a hydraulic duplicator. The job now takes but 34 minutes. Formerly it took 76 minutes to turn and 50% longer to grind. Single hydraulic system operates the hydraulic tracer valve and the piston which controls movement of tool slide carrying the cutting tool. "Miking" on shaft work is confined to the first diameter, after which all other diameters are secured automatically. The machine is readily converted to standard lathe operations.

COST SAVING ITEM—483

Production Increased 128%

Problem centered around the production of an automotive part which required grinding on three different diameters. Former method

(*Please turn to page* 394)

We salute N. A. P. A. at Atlantic City May 25-28



CLEVELAND *Top Quality* FASTENERS

for particular fastener users

Cap Screws . . • Hex (bright and high carbon), Socket, Flat Socket, Fillister, Flat.

Set Screws . . . • Square head, cup points standard —other points special.

Milled Studs . . • Standard or special threads.

BIG Sizes . . . . • Hex heads in diameters up to 2½", lengths to your needs. Flat heads to 1" dia.; square head Set Screws to 1½" x 10".

Specials . . . . . • Your own design special fastener-type parts, threaded or not, made in production quantities by the Kaufman Process.

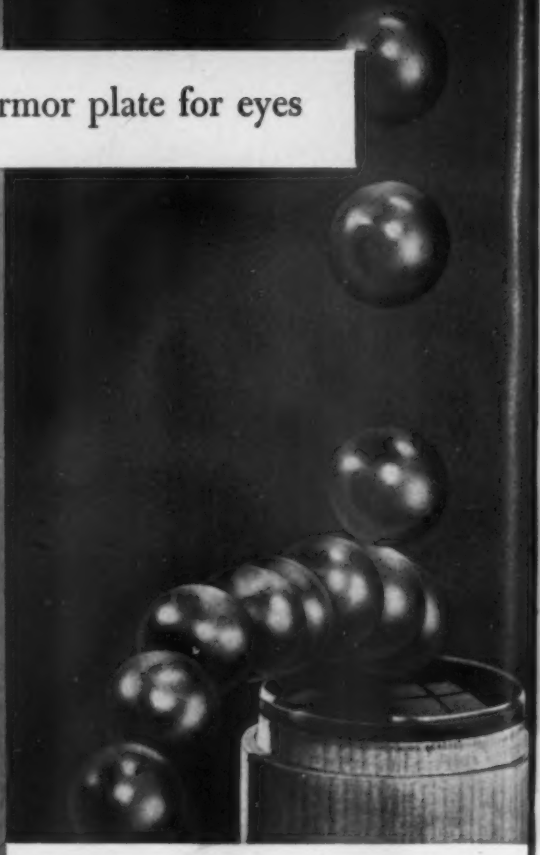
We're glad for the opportunity to greet our many friends at Atlantic City. Be sure to stop at our booth, No. 406.



CLEVELAND *Top Quality* FASTENERS

THE CLEVELAND CAP SCREW COMPANY
2922 East 79th Street, Cleveland 4, Ohio
Warehouses: Chicago • Philadelphia • New York • Providence
originators of the Kaufman DOUBLE EXTRUSION Process
Ask your jobber for Cleveland Fasteners

PROBLEM: Armor plate for eyes



ANSWER: If you dropped steel balls on *your* glasses, they'd shatter in dangerous splinters. AO safety-goggle lenses won't splinter. Scientists at American Optical devised a heat treatment that makes glass many times as strong, eyes safer.

PROBLEM: A hemoglobin laboratory for use at patient's bedside



ANSWER: Today, a physician need not send blood samples to a laboratory for hemoglobin analysis and delay diagnosis. Within 3 minutes, he can read the answer in the Hb-Meter. This meter is so fast that a patient's condition can be watched during treatment. Heart of the instrument is an accurately polished glass wedge, graded in color, against which the blood sample can be matched. The Hb-Meter is a creation of American Optical Company.

PROBLEM: To keep movie film from catching fire





American Optical

ANSWER: *Right,* film shielded by ordinary glass catches fire. *Left,* AO heat-absorbing glass prevents fire. This glass, developed for floods and projectors, absorbs 90% of heat from projected light, passes movie-film color in true values. Write us about your development problems. American Optical Company, 69 Vision Park, Southbridge, Mass.

ABOVE ALL... A SLING MUST BE SAFE!



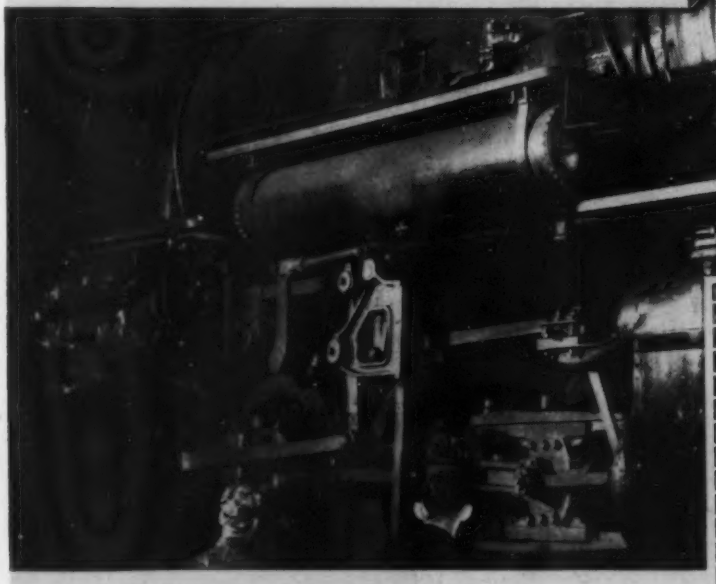
• You wouldn't trade places with the men in this picture unless you had utmost confidence in the wire rope sling.

Naturally you want to move loads easily at lowest possible cost, but neither of these advantages need be sacrificed for safety when you standardize on American Tiger Wire Rope Slings.

Your job is probably different—but we make different slings, too—enough types and varieties to fit the 430 applications listed in our "Tiger Sling" Book. If you get a copy of this book, and don't find the slings you need, tell us about it and our engineers will work out a special design for your own use.

For greatest strength American Tiger Slings are made from Monitor Improved Plow Steel Wire Rope. Fittings are specially heat-treated carbon steel for superior toughness.

By using the *right* sling for your job, you can get many times the service life you get from makeshift slings. And above all you get safety! Send the coupon.



American Steel & Wire
842 Rockefeller Building
Cleveland 13, Ohio

Please send me your free book on American Tiger Wire Rope Slings.

Name.....

Company.....

Address.....

City.....State.....

AMERICAN STEEL & WIRE DIVISION
UNITED STATES STEEL COMPANY, GENERAL OFFICES: CLEVELAND, OHIO
COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO • IN THE SOUTH—TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA.
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

USS

U·S·S AMERICAN TIGER WIRE ROPE SLINGS

UNITED STATES STEEL

RUBBER ENGINEERING BRAINS AT WORK

Primarily, ACUSHNET sells rubber engineering "brains" — specialized, collective engineering skill that produces the solution to problem jobs constantly confronting the users of "precision" molded rubber parts.

ACUSHNET accomplishments in this specialized field of precision-production are widely recognized throughout industry. We count among our customers many of the nation's leading manufacturers, as well as smaller producers of quality products.



Our Engineering Staff will gladly study your prints and recommend stocks with properties to meet specified conditions, or work with your engineers in the initial stages of their designs. Our staff is particularly adept in designing molds that provide maximum production efficiencies and economies.

Acushnet PROCESS COMPANY

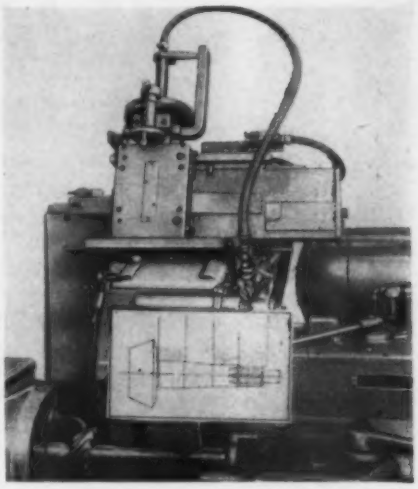
Send for your copy of the "Acushnet Rubber Handbook"



Address all communications to 770 Belleville Ave., New Bedford, Mass.

Machine Tools

(*Continued from page 390*)



required three operations on three machines and produced only 35 parts per hour. The old type machines were replaced with semi-automatic grinder with multi-wheel mount and automatic truing device. The new grinder accurately performs all three operations simultaneously at the rate of 80 parts per hour—a production increase of 128%.

COST SAVING ITEM—484

Drilled Plate Lasts Five Years Longer

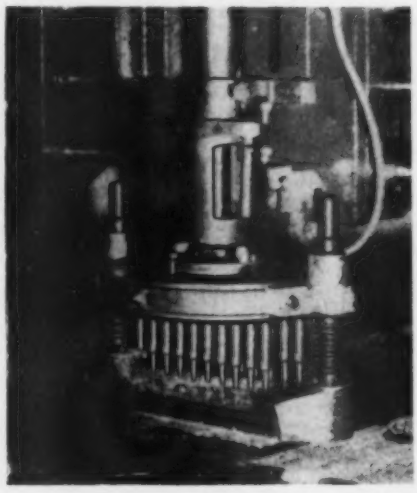
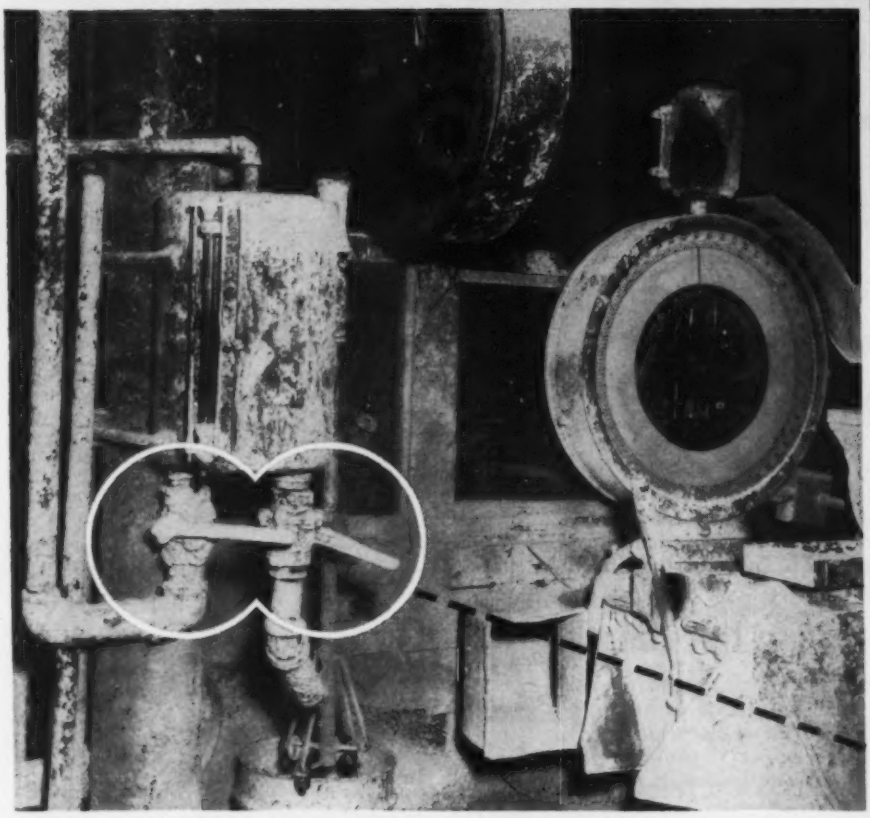


Illustration shows multiple drilling head drilling holes in a large silicon bronze plate used as a malt strainer in a brewery kettle. Each plate contains between 65,000 and 135,000 drilled holes. The head drills twenty ⅛" dia. holes ⅛" deep on the first operation and twenty No. 57 holes 1/16" deep on the second operation. The produc-

(*Please turn to page 396*)

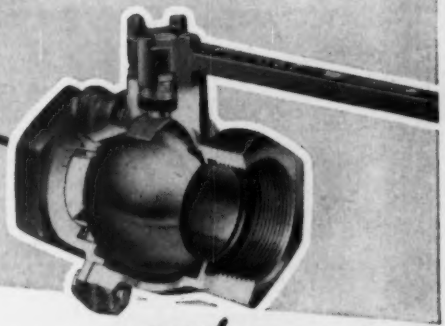
OPERATED *350,000 TIMES!* with NO MAINTENANCE



Libbey-Owens-Ford Glass Company obtains outstanding results with

ROCKWOOD BALL VALVES

Only Valve to Stay in Service Over a Year



Here, in this glass plant, Rockwood Ball Valves are giving *unsurpassed* service under extreme rugged conditions. For over a year, they have been opened and closed over and over again without the need of maintenance.

The two 1½" Rockwood Valves shown above are used on river water to mix plaster for the Grinding and Polishing line. Both Valves are worked 24 hours a day, 5 to 6 days a week and are operated approximately 1500 times a day depending on line speed. Company official says, "We are very well pleased with their operation; the best service we could get from other makes of valves prior to this was 6 to 8 weeks."

This plant is only one of many that is getting outstanding results from Rockwood Ball Valves. Place your order today for the new Rockwood Ball Valve.

For additional information and uses, write for bulletin V-4 today.

FULL ROUND FLOW! LEAK PROOF SERVICE!

To ensure top performance, Rockwood engineers designed the Rockwood Ball Valve with these 7 outstanding features. 1. Full round open area — no turbulence in fluid stream. 2. Leak proof after continued use. 3. Floating ball — resists pitting, scratching and abrasion. 4. No exposed seating surface in open or closed position. 5. Easy to open or close under full pressure. 6. Installed in any position. 7. Quarter turn (90°) opening and closing valve.

Rockwood Ball Valves are available in bronze from ½" to 2" for 300 p.s.i. working pressure and are recommended for use on lines handling water, air, gas, petroleums, food, carbon dioxide, nitrogen, paraffin and asphalt base petroleums, also alcohol, paper fluids and other types of liquids and gases.

Distributors in all principal cities.

ROCKWOOD SPRINKLER CO

106 HARLOW STREET WORCESTER 5, MASS



HOW MUCH ARE SLIPPING ACCIDENTS COSTING YOU?



ACCIDENT REPORT

Cause of accident:
Man fell on a slippery floor.

Means of prevention:
Install A.W. ALGRIP Abrasive Rolled Steel Floor Plate.

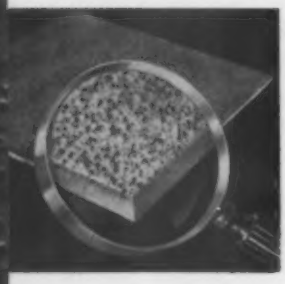
There's an easy, economical way to end slipping accidents that steal man-hours and drag production down. Put positive non-slip protection in your plant with exclusive A.W. ALGRIP Abrasive Rolled Steel Floor Plate.

NON-SLIP—EVEN ON STEEP INCLINES!



ALGRIP is made by rolling tough abrasive grain (the same kind used in grinding wheels) *uniformly* as an integral part of the steel plate's upper portion. When you walk on ALGRIP, hundreds of tiny safety brakes grip your feet at every step. *Result:* It's virtually impossible to slip—even on steep inclines.

WEAR WON'T WEAR OUT ITS SAFETY!



ALGRIP's safety isn't merely a surface treatment. Note the even distribution *and* depth of the abrasive grain. As the surface wears, new particles are exposed, so ALGRIP keeps its non-slip qualities for a lifetime. It needs no maintenance. Rolled steel makes it stronger than other abrasive floorings. It withstands hard blows and heavy loads without cracking or breaking. And thinner sections can be used without reducing load carrying capacity.

Get Full Details of ALGRIP Today

Our new Booklet A-26 gives complete technical details, suggests uses. Write for your free copy. *It may save you countless hours and dollars!*



A.W. ALGRIP ABRASIVE ROLLED STEEL FLOOR PLATE

ALAN WOOD STEEL COMPANY
Conshohocken, Pa.

Other products: PERMACLAD Stainless Clad Steel • A. W. SUPER-DIAMOND Floor Plate • Plates • Sheet • Strip • (Alloy and Special Grades)

Over 125 years of iron and steel making experience.

Machine Tools

(*Continued from page* 394)

tion rate is 20 holes every 3 seconds or 30 hours a plate. Multiple drilling makes possible the production of a vastly improved plate which lasts 5 years longer than the slotted plate previously used and gives three times greater output.

COST SAVING ITEM—485

Investment in Lathe Converter Saves Thousands

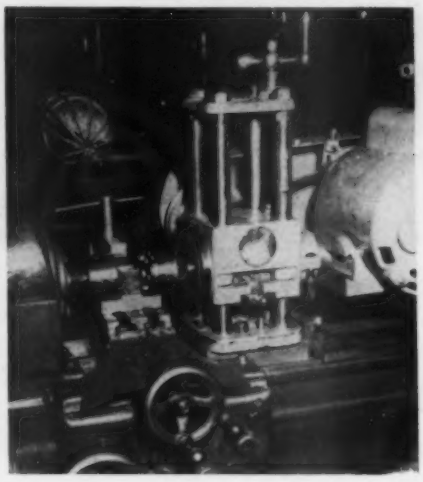


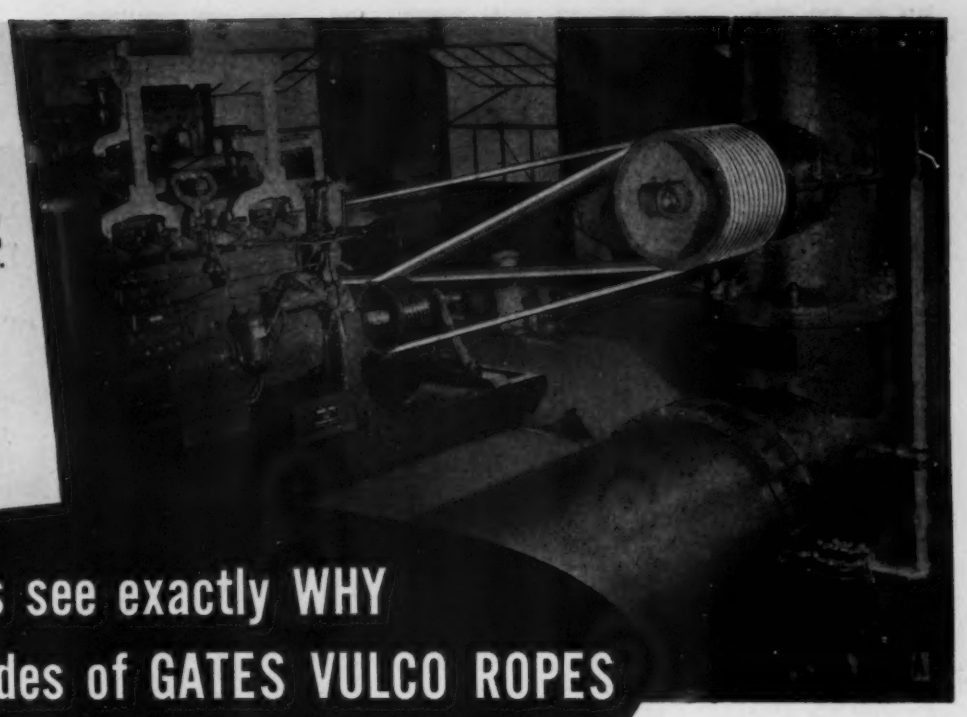
Illustration shows lathe converter and 10" lathe doing opposed milling operation at the Giles-McCoy Machine Co., Wichita, Kans. Cut being made in 4140 forging, annealed material, using six point carbide tipped tool in 2½" holder, is 2½" long, and 1¼" wide with 1/32 to ⅛" being removed, doing one piece per minute. An adapter to fit the ways of the lathe and to hold the converter in position was made in the shop. The initial investment for the lathe converter was only 6% of the cost of a new milling machine to do the work, resulting in a saving of several thousand dollars.

COST SAVING ITEM—486

Production Increased 25% Per Shift

Tool life on AISI 302 stainless steel parts was a problem, production costs were well below the break-even point. So, Groth Manufacturing Company, Plainville, Conn., changed to new and improved cutting oil, with the result that tool life increased from 1½ hours to 8 hours, and production

(*Please turn to page* 398)



To drive one of the new high capacity pumps which removes surface water and runoff from 15,000 acres of Illinois farmland, members of the District Board chose Gates Vulco Ropes, running from two diesel units.

Let's see exactly WHY the Concave Sides of GATES VULCO ROPES mean lower V-Belt Costs!



Every engineer knows how a V-belt *changes shape* when it bends around a pulley.

The top of the belt is under tension—making it grow *narrower.*

The body is under *compression,* causing the sides to bulge out!

Look at figure 1-A in the diagrams, herewith. There you see how a *straight sided* V-belt is forced to bulge in its sheave-groove—and this bulging naturally causes extra wear along the middle of the sides as indicated by the arrows.

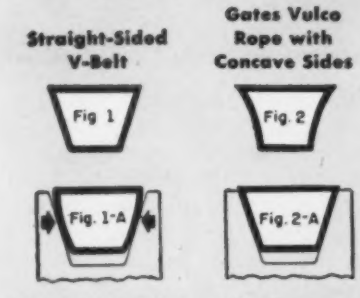
Now look at the figure 2-A. There you see how the precisely engineered Concave Sides fill out to an exact fit in the sheave groove.

Clearly, the Concave Sides press *evenly* against the V-pulley. This means uniform wear; longer life! The Concave Sides have *full traction;* wear longer because of *full contact!*

To sum up: The Concave Sides of Gates Vulco Ropes (U.S. Patent No. 1813698) give you (1) Less wear, (2) More pulley contact, (3) More sure power transmitted when needed!

Only V-belts made by Gates are built with concave sides. Whenever you buy V-Belts, be sure you get the V-Belt with the Concave Sides—The Gates Vulco Rope!

What Happens When a V-Belt Bends



How Straight-Sided V-Belt Bulges in Sheave-Groove. Sides Press Unevenly Against V-Pulley Causing Extra Wear At Point Shown by Arrows.

The Concave Sides Fill out to a Precise Fit in the Sheave Groove. No Side Bulge! Sides Press Evenly Against the V-Pulley—Uniform Wear—Longer Life!

CS-521

World's Largest Maker of V-Belts

Gates

Hose V-Belts Molded Rubber Goods for Industry

VULCO ROPE DRIVES

ENGINEERING OFFICES AND JOBBER STOCKS IN ALL INDUSTRIAL CENTERS

THE GATES RUBBER COMPANY • DENVER • U•S•A

"NO MORE LAMP PROBLEMS, thanks to the LUSTRA MAN"

(says Potts-Farrington Company, Philadelphia)



HERE ARE THE EXACT WORDS of Mr. Stanton J. Gebhart, Potts-Farrington Manager of Office Service.

"When our new office was built three years ago the lighting fixtures were equipped with fluorescent tubes. After six months our replacement problem was really serious. Four or five tubes burned out every day. Your local Lustra Man got us to try Lustra fluorescent tubes and not a single one has burned out in a period of over two years."

For greater operating efficiency, through better lighting, and for new convenience and lowest overall lamp costs, it will pay you to talk with your local Lustra Man. He's conscientious and thoroughly qualified to solve practically any lighting problem with the complete quality line of Lustra Double Duty Lamps and Fluorescent Tubes. Write us and we'll have him call on you or phone you for an appointment. Lustra Corporation, Dept. V-5, 36 Washington St., Brooklyn 1, N. Y.



Lustra Par 38 Double-Duty Spotlites and Floodlites



Lustra Double-Duty Incandescent Lamps



Lustra Double-Duty Fluorescent Tubes



Lustra Double-Duty Reflector Lamps

Lustra

AMERICA'S DATED LAMPS

Double-Duty Reflector Lamps, Incandescent Lamps, Fluorescent Tubes, Spotlites and Floodlites, Rugged Duty Lamps, Fluorescent Fixtures and Starters.

Machine Tools

(*Continued from page* 396)



jumped from 400 pieces to 500 pieces per shift—an increase of 25%. The new cutting oil contains sulphur combined by special process which provides greater chemical activity over the entire range of cutting operations, giving better protection to the tool.

COST SAVING ITEM—487

Boring Time Slashed 40%; Accuracy Increased

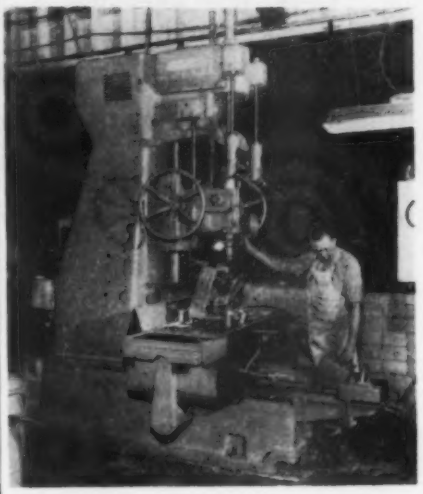
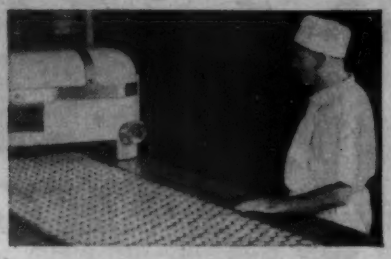


Illustration shows automatic positioning machine at the Stratos Division of Fairchild Engine & Airplane Corp., Farmingdale, L. I., which enables boring of cast magnesium housing covers for aircraft cabin pressurizers in 40% less time as compared with former method. At the same time accuracy was increased with exact duplication of the parts even though lots were interrupted. Jigs were replaced with compact, inexpensive duplicating bars and downtime for changeovers was virtually eliminated.

COST SAVING ITEM—488

(*Please turn to page* 400)











DO YOU NEED...

AMMONIUM CHLORIDE

AMMONIUM BICARBONATE

POTASSIUM CARBONATE

CAUSTIC POTASH

SODIUM NITRITE U.S.P.

See Solvay First

For the dependable quality and uniformity of America's oldest and largest producer of alkalies and associated chemicals.

For delivery service from a strategically-located major plant and local stock points.

For a Technical Service that is operated on an industry-wise basis . . . providing expert advice to individual industries.

For a sales service that is handled by a staff of thoroughly trained, helpful salesmen operating from thirteen convenient branch sales offices . . . plus a nation-wide organization of selected jobbers, distributors and dealers.

SOLVAY SALES DIVISION
ALLIED CHEMICAL & DYE CORPORATION
40 Rector Street, New York 6, N. Y.

BRANCH SALES OFFICES:
Boston • Charlotte • Chicago • Cincinnati • Cleveland • Detroit • Houston
New Orleans • New York • Philadelphia • Pittsburgh • St. Louis • Syracuse

SOLVAY
Alkalies Chemicals
Since 1881

Soda Ash
Caustic Soda
Chlorine
Ammonium Chloride
Ammonium Bicarbonate
Caustic Potash
Potassium Carbonate
Sodium Nitrite
Calcium Chloride

Sodium Bicarbonate
Nytron
Para-dichlorobenzene
Ortho-dichlorobenzene
Monochlorobenzene
Specialty Cleansers
Methanol
Formaldehyde



A Good Target for Buyers of Threaded Fasteners

Why do we buy fasteners in the first place? Obviously to hold parts together. The most important function therefore is holding power. So why not try Triplex? The line that's tough and true is the line for you and me too. If your catalog or wall chart is getting frayed, ask for a new one. The Triplex Screw Co., 5317 Grant Ave., Cleveland 5, Ohio.

TRIPLEX for TOUGHNESS

CAP AND SET SCREWS • BOLTS, NUTS AND RIVETS

Machine Tools

(*Continued from page* 398)

New Broaching Machine Saves $400 Per Day



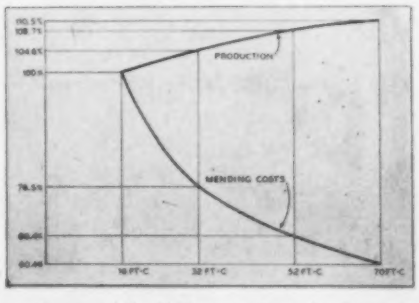
Following are results of installing new broaching equipment at the Detroit Tank Arsenal: The first of the new machines permitted—(1) Reduced cutting time for 294 internal 4-pitch teeth on turret ring gear from 4½ hours to 30 minutes, (2) Saving, $400 a day, (3) Eliminated ¾ of the capital outlay required by previous machining methods, (4) Eliminated ⅞ of the number of machine tools required by the method previously used.

COST SAVING ITEM—489

Electrical

(*Continued from page* 155)

Good Lighting Ups Production, Lowers Mending Costs

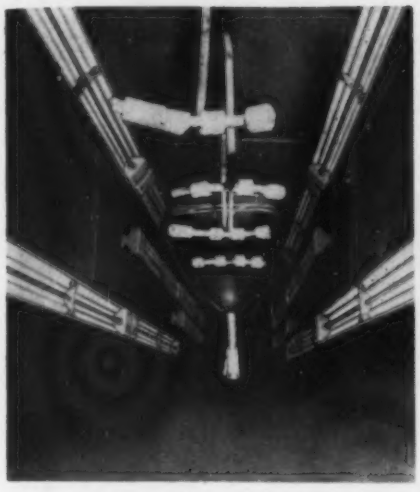


James M. Schute, electrical engineer for Uxbridge Worsted Company, Uxbridge, Mass., decided to test the practical effects of better seeing conditions on production. First he raised the lighting level from 16 to 32 fc. Production went up 4.6%; mending costs dropped

26.5%. Lighting was increased to 52 fc., with 4.1% production increase, and lower mending costs. Next lighting was raised to 70 fc. As a result of the three lighting steps, production is now up a total of 10.5%, and mending costs are down 39.6%.

COST SAVING ITEM—490

Television Tube Breakage Reduced 80%



Television tube breakage has been reduced more than 80% and production stoppage halved by manufacturer who changed to far infrared radiant heaters to bake the interior graphite coating. The former convection heating method produced uneven heating, setting up stresses in the glass. Far infrared rays are absorbed evenly by glass which transmits most of the near infrared energy.

COST SAVING ITEM—491

Good Lighting Increased Production 10 to 15%



(*Please turn to page* 404)



Buy from the plant that produces a full line of threaded fasteners in a wide range of sizes. It simplifies purchasing and assures better delivery. The Triplex Screw Co., Cleveland 5, Ohio.

TRIPLEX for TOUGHNESS

CAP AND SET SCREWS · BOLTS, NUTS AND RIVETS

Announcing another Purdy first! The new

MOBILE METALS EXHIBIT

IT'S A NEW KIND OF SHOW! A multitude of fabricated metal parts ingeneously displayed in a custom built, residential-type trailer. Metal buyers, metal fabricators and product designers will find it of special interest. You are cordially invited to inspect it when attending the show!

ON DISPLAY—DON'T MISS IT! Visit the Purdy Mobile Exhibit parked for your convenience at Booth 9-13 Annual Convention of the NAPA, Atlantic City, New Jersey — May 25th to 29th.

PURDY STEEL AND ALUMINUM

—complete warehouse service on:

- SPRING STEELS
- COLD FINISHED STEELS
- COLD ROLLED SHEETS
- COLD ROLLED STRIP
- STAINLESS STEELS — ALL TYPES
- DRILL ROD
- ALUMINUM SHEETS & COILS
- ALUMINUM BARS & RODS

INVENTORY IS OUR BUSINESS

LYNDHURST:
Rutherford 2-8100
NEW YORK CITY:
Chelsea 3-4455
NEWARK:
Humboldt 2-5566

A. R. Purdy Co.
INC.
LYNDHURST NEW JERSEY
Teletype: Rutherford, N. J. — 79

CONNECTICUT:
Enterprise 6400
ROCHESTER:
Enterprise 6400
SYRACUSE DIST. OFF:
Syracuse 72-6677

HIGH-ACCURACY SLITTING AND SHEARING OF ALL METALS —
ALL WORK PERFORMED TO CLOSE TOLERANCES ON HIGH SPEED MACHINERY

This reamer averaged

1,800 HOLES PER GRIND



...without loss of accuracy or finish!

The hole in the base of a projectile must be reamed to extremely close tolerances, both as to size and finish. Not every reamer can give you good results in these 1040 steel forgings without frequent regrinding. In tests on the set-up illustrated above, no other reamer equalled the performance of *Cleveland* High Speed Adjustable Reamers! These superior tools consistently averaged *1,800 holes per grind* without sacrificing accuracy or the requirement for a smooth finish of the hole. You too can get MORE HOLES PER GRIND with *Cleveland* Reamers. One of our Service Representatives will be glad to make arrangements for a test in your shop. Contact the nearest Stockroom, or . . .

Telephone Your Industrial Supply Distributor

THE CLEVELAND TWIST DRILL CO.

1242 East 49th Street • Cleveland 14, Ohio

Stockrooms: New York 7 • Detroit 2 • Chicago 6 • Dallas 2 • San Francisco 5 • Los Angeles 58

E. P. Barrus, Ltd., London W. 3, England



ASK YOUR INDUSTRIAL SUPPLY DISTRIBUTOR FOR THESE AND OTHER *Cleveland* TOOLS

Serving INDUSTRY *since* 1887

WASHERS and STAMPINGS

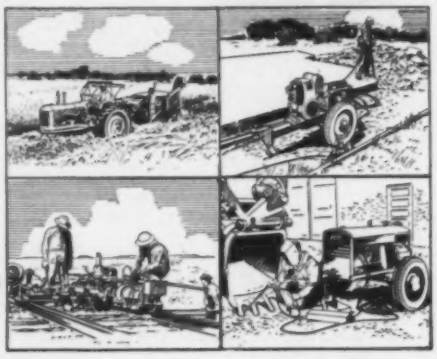


Standard and Special Washers, of every description, from every kind of material, any desired finish . . . designed for every purpose . . . utilizing more than 22,000 Sets of Dies.

Let us Quote on Your Needs.

WROUGHT WASHER MFG. CO.
THE WORLD'S LARGEST PRODUCER OF WASHERS
2113 SOUTH BAY STREET • MILWAUKEE 7, WISCONSIN

Wherever Engine POWER is Needed...



WISCONSIN *Air-Cooled* ENGINES

Single cyl. 3 to 9 H.P.

2-cylinder 7 to 13 H.P.

V-type 4-cyl. 15 to 30 H.P.

Fit the Job and the Machine

Because Wisconsin Air-Cooled Engines are supplied in a complete power range, from 3 to 30 H.P., in 4-cycle single cylinder, 2- and 4-cylinder types, there is an ideal size to fit all types of machines and power applications within this range, without wasted power and with maximum power service benefits. Heavy-duty construction, combined with extremely compact design and light weight are added advantages—and dependable AIR-COOLING permits trouble-free service under all climatic conditions.

Specify Wisconsin Heavy-Duty Air-Cooled Engines for the utmost in power satisfaction. Write for descriptive data.

MOST H.P. HOURS

WISCONSIN MOTOR CORPORATION
World's Largest Builders of Heavy-Duty Air-Cooled Engines
MILWAUKEE 46, WISCONSIN

A 7111-⅛AA

Electrical

(*Continued from page* 401)

General lighting in plant of mid-western rubber company is adequate for the average seeing task. However, each operator in the rubber trimming section has an additional 100 footcandles from a low mounted 85-watt fixture. The operators work on piecework. They are turning out 10% to 15% more production with fewer errors, and of course make more money for themselves. Safety record has also been materially enhanced.

COST SAVING ITEM—492

Variable Power Drives Increase Production 50%



Production was increased as much as 50% through the infinite speed adjustment and accurate control of speed made possible by installation of speed control variable speed electric power drives on cold heading machines at the Allen Manufacturing Co., manufacturers of hex-socket and cap screws. Use of the speed controls also resulted in 50% lower maintenance cost and a reduction in machine down time. Employee earnings were increased by reason of higher volume production per day per machine.

COST SAVING ITEM—493

Pumpless Rectifier Cuts d-c Power Costs

New development in the form of pumpless mercury-arc rectifier installed at Oldbury Electro-Chemical Company's Niagara Falls plant, by eliminating vacuum pumping and combining the entire rectifier assembly in one compact, integrated

(*Please turn to page* 406)



MANY FAMOUS PRODUCTS

ARE PACKED IN GAIR CARTONS AND SHIPPED IN GAIR CORRUGATED CONTAINERS

SHIPPING CONTAINERS

Without obligation Robert Gair offers a helping hand in solving shipping container problems. At your service is an organization replete with top-flight technicians in research ...creation of new ideas for better containers ...and new practical methods of sealing containers, by hand or by machine.

GRAVURE

Gair multicolor gravure printing on sheet-fed paperboard gives absolute fidelity in COLOR REPRODUCTIONS...thus eliminating expensive outside wraps on your cartons. Many types of art and the widest range of color techniques can now be used.

FOIL CARTONS

When a Gair-Reynolds Foiline package is displayed on the dealer's counter, showcase, shelf or in the window, a sensational sales impact is created. In many instances sales have doubled and tripled through the persuasive influence of these brilliant, multicolor foil cartons.

GAIR TUFBORD

A new, sturdy and rigid folding paperboard developed to withstand tremendous knocking about and rough usage. Tufbord is particularly suited for packaging heavy goods, such as hardware, machine parts, books...and light materials where stacking strength is required.

Write for new Folding Carton Booklet . . .
CARTONS BY GAIR . . . A STYLE GUIDE

GAIR*

*Reg. U. S. Pat. Off.

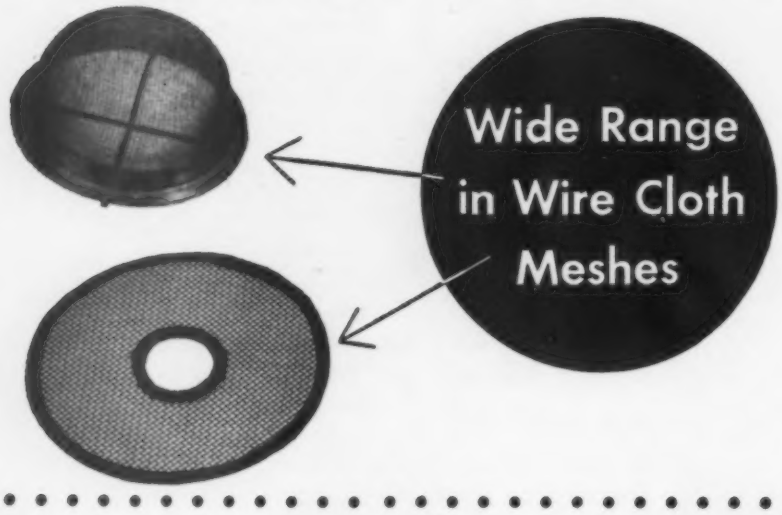
ROBERT GAIR COMPANY, INC.

155 EAST 44th STREET, NEW YORK • TORONTO

PAPERBOARD • FOLDING CARTONS • SHIPPING CONTAINERS

NEWARK
Fabricated Wire Cloth Parts





We have the facilities and skilled workers to make a great variety of wire cloth parts. We're doing a lot of work along these lines. We do the assembling in our own plant, using our own well known "Newark" Cloth. We bring to this work experience gained by several generations of wire cloth manufacturing and many years experience in fabricating and assembling parts. We'll be glad to quote on your next requirements. If you would like suggestions as to how best make use of wire cloth in the assembling we'll be glad to help. Send us an outline or print of your problem.

NEWARK for ACCURACY

Newark Wire Cloth COMPANY

351 VERONA AVENUE • NEWARK 4, NEW JERSEY

Philadelphia 3, Penna. 1311 Widener Bldg. | San Francisco, Calif. 3100 19th St. | Chicago, Ill. 20 N. Wacker Dr. | New Orleans, La. 520 Maritime Bldg. | Los Angeles, Calif. 1400 So. Alameda St. | Houston, Texas P. O. Box 1970

(*Continued from page* 404)



unit, introduced the following savings: Installation costs cut—unit is factory wired for quick connection, needs no special foundation, and takes up less building space. Cuts operating costs—no vacuum pumping losses are sustained. Cuts maintenance costs—with minimum of moving parts, period inspections are reduced. Illustration shows 12 tank rectifier unit.

COST SAVING ITEM—494

Infrared Lamps Speed Cemented Products Output



Manufacturer of cemented products involving the continuous application of cement to rubber, installed infrared lamp drying system. Result—the production now achieved with one attendant in four hours, matches that which formerly required three people two full shifts.

COST SAVING ITEM—495

(*Please turn to page* 408)



NO FINER
ELECTRODES MADE
. . . ANYWHERE

PRODUCTION MAGIC!

Where would American production be without Welding?

The planes, tanks, and ships . . . the petroleum that powers and warms a nation . . . the periodicals you read and the paper you write on . . . the railroads that span our country . . . the equipment that builds our roads, mines our coal, iron, and minerals . . . the clothes you wear . . . even the food you eat and milk you drink . . . these and the machinery that produces them **all depend on welding.** An arc welded alloy product is a better product. And **Alloy Rods** alloy arc welding electrodes in the familiar red metal containers are the **best** the world affords.

Alloy Rods Co.

AR-6

ALLOY RODS COMPANY, YORK, PENNSYLVANIA

ARCALOY for stainless steel • **ARMORARC** for armor welding • **BRONZE-ARC** for bronze and cast iron • **NICKEL-ARC** for cast iron • **TOOL-ARC** for tool steel • **WEAR-ARC** for hard-facing • **WELD-ARC** for low hydrogen electrodes. **Write for specific bulletins, or consult your Alloy Rods distributor.**



THE MOST COMPLETE LINE

There are almost 1500 types and sizes in Laughlin's quality line of drop forged fittings.

There are many different styles of shackles, swivels, hooks, thimbles, clips, sockets, eye bolts and other products designed for a wide variety of applications throughout industry. If you use wire rope or chain, you can be sure that Laughlin has the right — *and safest* — fittings for the job.

THESE EXCLUSIVE PRODUCTS



Safety "FIST GRIP" Wire Rope Clips . . . Fool proof, easy to install Fist Grip clips hold rope more securely, can't go on wrong. Fewer clips are required than for ordinary types, and they will not crush or distort the rope.

SAFETY HOOKS . . . The latch locks the load, will not open until released by operator. Strong, drop forged steel hook has improved latch that leaves 80% of throat opening. 15 sizes; 3 patterns, eye, shank and swivel.





"MISSING LINK" (Reg. U.S. Pat. Off.) . . . Cheaper than welding, safer than cold shut or cast link, "Missing Links" go on in a jiffy and are stronger than proof coil chain. 17 sizes from 3/16" to 1⅞".

CLEVIS GRAB AND SLIP HOOKS . . . These sturdy hooks are easily attached to any welded link chain. Pin and cotter make it easy to attach or remove for use on another job. Needs no connecting fittings or special tools.



Laughlin's new Catalog No. 150 lists the complete line of drop forged wire rope and chain fittings with illustrations, description and specifications. Write for it today.



LAUGHLIN THE THOMAS LAUGHLIN CO.
54 Fore Street
Portland 6 Maine

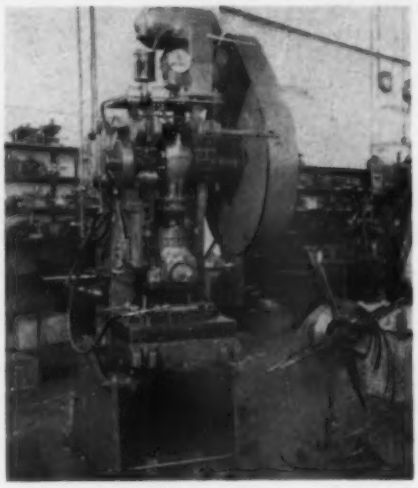
THE MOST COMPLETE LINE OF DROP FORGED WIRE ROPE AND CHAIN FITTINGS



Electrical

(*Continued from page* 406)

Machine Versatility Increased 40%



Replacement of single speed motors with speed control variable speed electric power drives on punch presses at the Los Angeles factory of the Square D Company resulted in: 30% more production, 10% reduction in spoilage and rejects; 40% greater machine versatility; 100% synchronization of punch press speed with operator's ability. Starting of heavy fly wheels with the variable speed electric power drives is no problem because the variable speed pulleys are adjusted by means of mechanical linkage which does not incorporate springs. The drive at any speed setting is as positive as if fixed pulleys were used.

COST SAVING ITEM—496

Box Sections Ready for Assembly in 5 Minutes



Unpainted wood sections are fed into a hopper and five minutes later they have been painted, dried, and are ready for assembly, at plant of

(*Please turn to page* 412)

NOW! you can roll power and light

RIGHT TO THE JOB



WITH NATIONAL ELECTRIC'S **NEW**

ROLLA-DUCT

portable

POWER & LIGHT UNIT

POWER HEAD—CATALOG NO. 17P

Can also be provided with four flood lamp sockets, duplex outlet, and circuit breaker toggle switch (Light Head—Catalog No. 17L).

- Rugged, non-conductive wheels.
- Circuit breaker for full worker protection. Entire unit fully grounded.
- Sturdy, all-steel tubular carriage. May be elevated to 5½ ft. or can be rolled under jobs.
- Power head on ball-and-socket swivel locks into any horizontal or vertical position.
- Heavy duty Indestructo cable—21 ft., three-conductor, #12 A.W.G. power cable. Neoprene jacket resists chemicals, acids and abuse.

Approved for 20 ampere loads, 115 volt operations

No need to relocate light and power outlets to meet extra demands of assembly lines, temporary lighting or general maintenance. Rolla-Duct supplies light and power wherever the standard wiring system is inconvenient to use.

LISTED BY UNDERWRITERS' LABORATORIES, INC.
SOLD THRU LEADING ELECTRICAL WHOLESALERS



EVERYTHING IN WIRING POINTS TO



National Electric Products

PITTSBURGH, PA.

Plants in Ambridge, Pa., Torrance, Calif. and Elizabeth, N. J.

National Electric Products Corp.
1351 Chamber of Commerce Building
Pittsburgh 19, Pennsylvania

Please send me complete information on Rolla-Duct.
I am interested in using it for_____

Name_____

Title_____

Company_____

Address_____

WRITE FOR COMPLETE INFORMATION ON ROLLA-DUCT USE THIS HANDY COUPON



THE AMERICAN MONORAIL COMPANY

13138 ATHENS AVENUE CLEVELAND 7, OHIO

Stop Costly Shutdowns Due To Valve Stem Failure

"Stemalloy"*

Outlasts The Next Best Stem Material

3 TO 1

Lunkenheimer "Stemalloy" Valve Stems, endurance tested under actual steam-pressure and service conditions, consistently outlasted the next best stem material 3 to 1. If you want to eliminate stem failure, insist on Lunkenheimer Valves. All Lunkenheimer Bronze Valves and Iron Body Bronze Mounted Valves have "Stemalloy" stems. Of the millions in service, *not one has ever been returned due to wear failure.*



Fig. 73

WRITE FOR "Lunkenheimer Copper Base Alloys," a useful booklet on valve metals which will help you select the right valve for a given application. It is available from your distributor, or from The Lunkenheimer Company, Box 360M, Cincinnati 14, Ohio.

*Patented alloy

BRONZE • IRON • STEEL

LUNKENHEIMER

THE ONE *Great* NAME IN VALVES

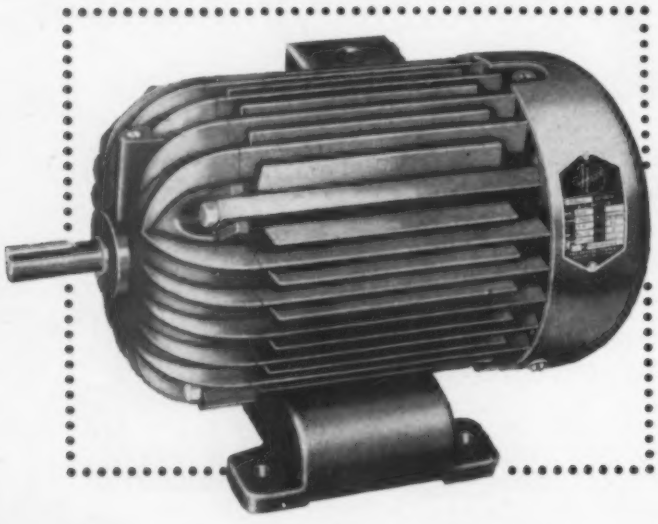
L-652-7

New Hoover® Motors



HOOVER

totally enclosed



If you make a motor-driven product that must work where there's moisture, heavy dust, wood chips, or metal shavings—*these new, totally enclosed Hoover Motors are for you.*

And you are getting more for your money than with any comparable motor on the market.

There are both *self-cooled* and *fan-cooled* models—newly designed to keep trouble out and performance high. No openings to let moisture in. No blind passages to catch dust and dirt.

A working giant in a small package

Polyphase motors through 5 H. P. Capacitor start motors through 3 H. P. All built in NEMA frames. Extremely compact. More horsepower for each pound of motor—more motor for your money in every way.

Made and guaranteed by the makers of the famous Hoover Cleaners, who have been building precision motors since 1934. World-wide service facilities—always ready to protect your good name.

THE HOOVER COMPANY
Kingston-Conley Division
Dept. P-5
68 Brook Avenue, North Plainfield, New Jersey

Please send catalog showing and describing complete line of Hoover Motors.

Name_____

Address_____

City_____ Zone____ State_____

(*Continued from page* 408)

the General Box Company in New Orleans. The time varies slightly according to the color of paint used. Before the infrared lamps were installed, the drying required considerable floor area—often for several days in rainy weather.

COST SAVING ITEM—497

Packaged Electric Drive Saves 60% of Space



A 60% saving in floor space and availability of wider speed range of unlimited selectivity, without mechanical clutches or speed changes, have been gained by the installation of a 1 hp packaged electric drive on final gas range assembly line in plant of Perfection Stove Co., Cleveland. Comprising an adjustable-speed drive motor, an operator's control station and an electronic control unit, the drive operates from a-c supply line. The 175-ft. conveyor can be operated at speeds of from 7.75 up to 62 inches per minute. Equipment previously used required 25 sq. ft. of floor area. The packaged electric drive takes only 10 sq. ft., netting a 60% space saving.

COST SAVING ITEM—498

Testing Time Cut Substantially by Multiple Plug System

Completed electric clock units are turned out at the rate of 16 per minute in assembly rooms of a Connecticut Clock company. All are tested in sound-proof tunnels and on

(*Please turn to page* 414)

WHEN YOU THINK OF ...TAPPING SCREWS



Think of

CENTRAL

ALL HEADS STYLES • ALL METALS

RESEARCH—Central's complete high quality line of tapping screws includes Types A-B-C-U and types 1-23 and 25 thread cutting varieties, scientifically developed over a period of years to insure trouble-free assemblies along production lines. They eliminate pretapping costs in hard or soft metals, fibre, asbestos, plastics and porous castings.



KNOW-HOW—Produced on the latest type, high-speed equipment to hairline tolerances under rigidly controlled inspection, Central Tapping Screws are heat-treated to predetermined strength requirements and tested in our own laboratories.



QUALITY—Central's Tapping Screws are known for their clean, uniform threads and sharp points or cutting edges. Sturdy dependable types A-B-C-U and types 1-23 and 25 are obtainable in all head styles and sizes.







"You Can Depend on Central"

CENTRAL SCREW COMPANY

3501 SHIELDS AVE., CHICAGO 9, ILLINOIS

3028 E. ELEVENTH ST., LOS ANGELES, 23 CALIF. • 149 EMERALD ST., KEENE, N. H.

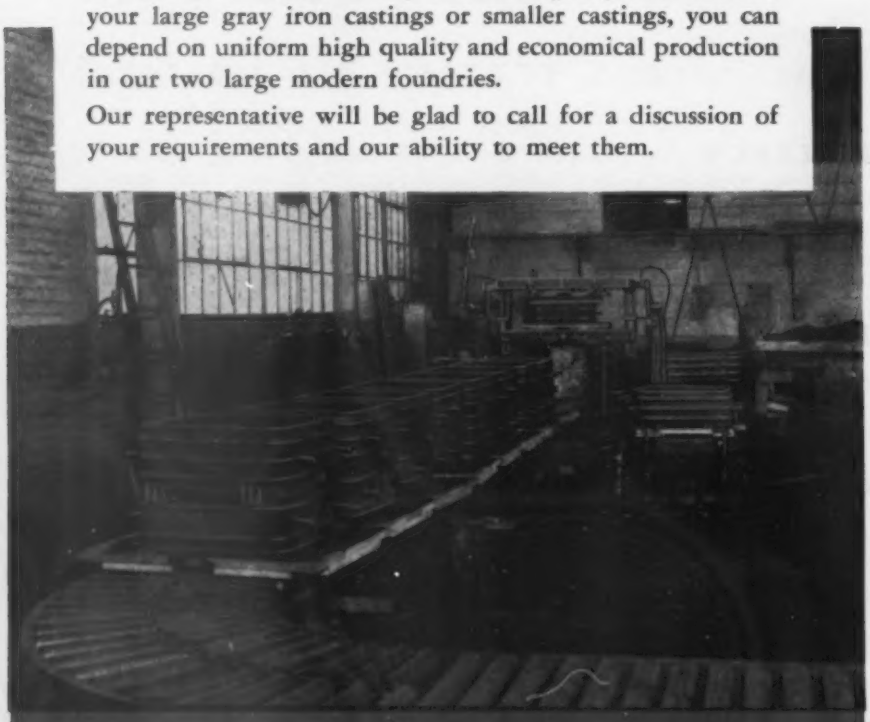


● Among recent expansions of Forest City Foundries facilities are additional equipment for the more expeditious production of large castings—particularly those which have a deep draw.

Shown here is a new installation—with time-saving hydraulic rollover and pattern draw. A roll conveyor, to carry large molds, affords a further reduction in time and labor.

Forest City's greater facilities and know-how may be just the factors needed to meet your exacting requirements. For your large gray iron castings or smaller castings, you can depend on uniform high quality and economical production in our two large modern foundries.

Our representative will be glad to call for a discussion of your requirements and our ability to meet them.



The FOREST CITY FOUNDRIES Company

3300 WEST 37TH STREET • CLEVELAND 13, OHIO

TELEPHONE TOWER 1-5040

Electrical

(*Continued from page* 412)

electrified test reels. A multiple-plug assembly stem with outlets every six inches is used in the tunnels and on the reels. Seventy-two two-foot lengths of the plug-in strip are used on each reel, each length containing four outlets; 500 ft. of the strip are used in the tunnels.



1200 clocks are tested at one time in the tunnels, while each reel accommodates 288 clocks. Total time required for test operations has been substantially cut, while "plug failure" has been eliminated.

COST SAVING ITEM—499

Rejects Cut, Scrap is Down Account Better Light



The Moore Business Forms Company installed this home-designed lighting hood over a stereotype router. There are three 20-watt fluorescent lamps inside the hood, the inside of which is painted white. Top half of sliding glass door is painted so lamps are not in opera-

(*Please turn to page* 416)



instantaneous control

Only P&H AC Welders have this feature

for faster, easier, sounder welds on non-ferrous and "hard-to-weld" metals

No other welder has this Instantaneous Control feature. Foot-operated, the control provides the heat you call for instantly, *electrically* — not mechanically. No time lag. It's a P&H exclusive that boosts production, cuts costs, saves time.

Inert Gas Welding

Instantaneous control lets you handle "hard-to-weld" metals with ease — aluminum, magnesium, brass, copper, stainless, high carbon, high alloy, and low carbon steels. You get sound welds — X-ray quality every time. No burn-throughs, fewer rejections.

Operators like it, too. It gives them faster, better welds in only five simple steps. Check them:

1. Foot switch automatically turns on power, high frequency, water and gas.
2. Arch starts *instantly* without touching work.
3. Foot switch control provides exact heat needed *while* welding — *no time lag.*
4. Foot-operated control cuts power either gradually or instantly at completion of weld. Eliminates craters — no scrap pieces needed to run out bead.
5. Gas and water shut off automatically according to pre-set time delay.

Compare AC Inert Gas Welders, point by point, and you'll buy P&H. Check these outstanding features:

- **P&H Dial-lectric Control** — No moving coils or cores to bind or freeze. Maintenance is absolutely negligible.
- **Built-in high frequency unit** — eliminates additional external equipment. Variable frequency control.
- **Automatic gas and water control** — Pre-set automatic time delay control (2 seconds to 2 minutes) prevents electrode contamination, assures clean, sound welds.
- **Stepless amperage regulation** — from 10 amps to maximum. Three models available — ranges 200, 300 and 500 amps.
- **Unusual arc stability** — Makes good clean welds where extremely low amperages are required.
- **Selector switch** — gives operator instant choice of standard or high frequency unit.

No wonder P&H Inert Gas Welders are the choice of the aircraft industries where top quality work and speed are "musts". They join "hard-to-weld" metals faster and easier — eliminate rejects for you, too. Get full details from your P&H representative or write us for further information.

2428

P&H

WELDING DIVISION
HARNISCHFEGER CORPORATION
4577 WEST NATIONAL AVE. • MILWAUKEE 14, WISCONSIN

POWER SHOVELS • CRAWLER AND TRUCK CRANES • OVERHEAD CRANES • HOISTS • ARC WELDERS AND ELECTRODES • SOIL STABILIZERS • DIESEL ENGINES • PRE-FABRICATED HOMES

OVER HALF OF ALL TOP-RATED FIRMS USE

Speed Sweep

THE BRUSH WITH THE STEEL BACK



Sweeps cleaner, faster!

Out lasts ordinary brushes 3 to 1

Write for Styles, Sizes and Prices Today!

MILWAUKEE DUSTLESS BRUSH CO.
530 N. 22 STREET, MILWAUKEE 3, WISCONSIN

Gentlemen: Please send complete facts about Speed Sweep.



Company_____

Address_____

City_____ Zone____ State_____

Electrical

(*Continued from page* 414)

tor's field of sight. There are 120 footcandles inside where the router touches the work. Because there is good general lighting throughout the shop this high lighting level is well within the brightness comfort ratio of 3 to 1. It is stated that "The work is done faster and scrap is down. Rejects have been cut tremendously because the operator can see more accurately, work more carefully."

COST SAVING ITEM—500

Induction Brazing Salvages $17. Tool for 46¢.



Large high-speed lathe tools used by midwestern manufacturer cost $17.00 each. Tool is eight inches long but formerly was discarded after four inches had been used. Manufacturer reports that all of tool is now used, the four inch stub being induction brazed to a four inch shank, providing "a new tool for the cost of grinding and brazing —46¢ of which 6¢ represents the cost of brazing." Manufacturer also states "This process applied to the many high-speed tools we use, provides a monthly saving of $2,000." The induction machine paid for itself in less than two months.

COST SAVING ITEM—501

Turbine Generator Saves $750 per Week

As part of plant expansion program, Oscar Mayer & Co., meat packers increased power-system capacity of its Madison, Wis. packing plant by installing 3000-kw tur-

(*Please turn to page* 418)



Steel veins for iron horses

Steel veins for iron horses—strong, durable veins easily forged and fabricated to exact requirements—this is but one of the many applications for OSTUCO Tubing in products of modern design, products that strengthen America and the free world.

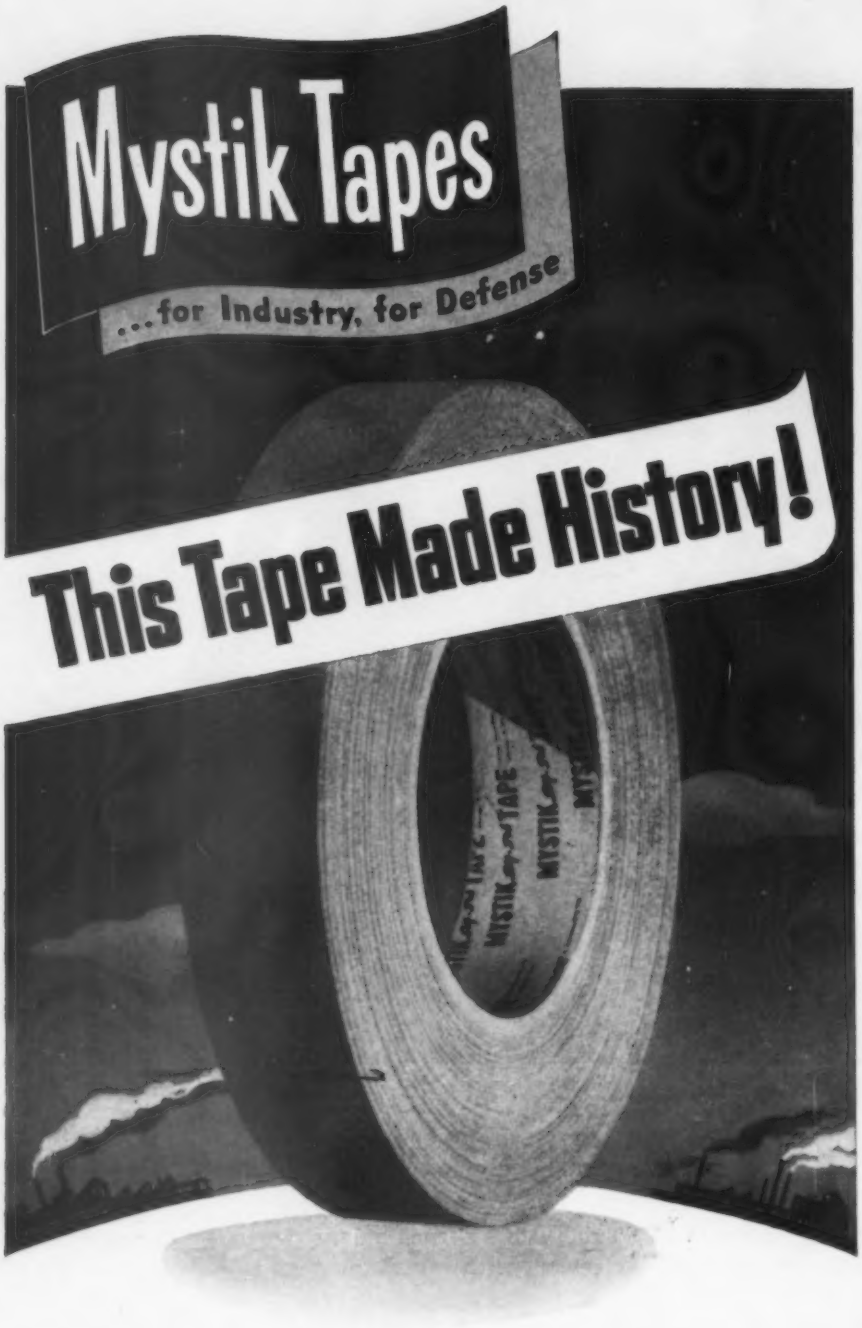
OSTUCO Tubing presents endless opportunities for improving design in almost every field. In addition to infinite adaptability, OSTUCO Tubing offers such advantages as maximum strength with minimum weight, good surface conditions for finishing, excellent machinability, and low cost. We cannot always promise early delivery estimates on new civilian orders, because of military demands, but it will pay you to consult our experienced engineers about OSTUCO Tubing when redesigning your products to meet future competition.



THE OHIO SEAMLESS TUBE COMPANY
Manufacturers and Fabricators of Seamless and Electric Welded Steel Tubing
Plant and General Offices: SHELBY, OHIO

OSTUCO SHELBY, OHIO

SALES OFFICES: Birmingham, P. O. Box 2021 • Chicago, Civic Opera Bldg., 20 N. Wacker Dr. Cleveland, 1328 Citizens Bldg. • Dayton, 511 Salem Ave. • Detroit, 520 W. Eight Mile Road, Ferndale • Houston, 6833 Avenue W, Central Park • Los Angeles, Suite 300-170 So. Beverly Drive, Beverly Hills • Moline, 617 15th St. • New York, 70 East 45th St. • Philadelphia, 1613 Packard Bldg., 15th & Chestnut • Pittsburgh, 1206 Pinewood Drive • St. Louis, 1230 North Main St. • Seattle, 3104 Smith Tower • Syracuse, 501 Roberts Ave. • Tulsa, 733 Kennedy Bldg. • Wichita, 622 E. Third St. • *Canadian Representative:* Railway & Power Corp., Ltd.



- Mystik Cloth Tapes
- Mystik Paper Masking Tapes
- Mystik Protecto-Mask
- Mystik Dri-Pipe
- Mystik Spra-Mask
- Mystik Sand-blast

When the chips were down in World War II, MYSTIK Cloth Tapes supplied 65% of the total needs of industry and the armed forces. Again MYSTIK has the answers to tremendous supply and protective shipping problems. Whatever your needs—protective or production—you can rely on MYSTIK Tapes to meet the toughest demands . . . government specifications or *your* specifications! Write for full information and samples now.
Mystik Adhesive Products,
2634 N. Kildare, Chicago 39.

Electrical

(*Continued from page* 416)



bine generator and metal-clad switchgear assembly. Running 16 hours per day, the new turbine generator provides more efficient steam utilization, supplying extra process steam and electric power. As a result it saves about 100 tons of coal per week at $7.50 per ton, or $750 weekly.

COST SAVING ITEM—502

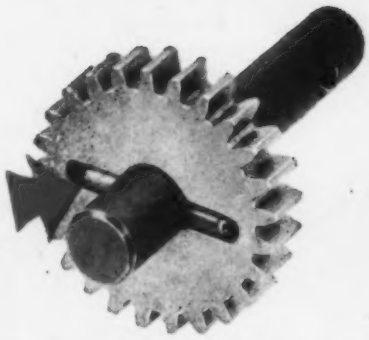
Radiant Heaters Double Wallpaper Drying



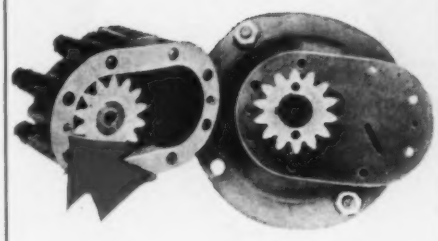
Doubled production and reduced kilowatt capacity are chief features of installation of far infrared heat used to dry light colors in plant of wallpaper manufacturer, who increased speed of drying water colors from 43 fpm to 83 fpm by substituting electric radiant heaters for filament-type infrared. Capacity was dropped from 66 kw to 54 kw at the same time.

COST SAVING ITEM—503

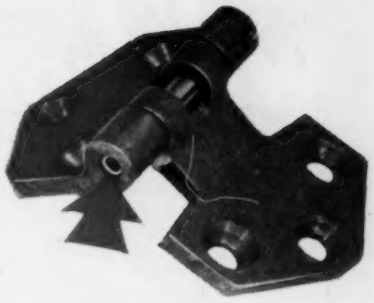
(*Please turn to page* 420)



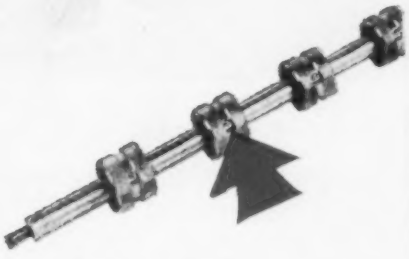
REPLACING A HUB ON A GEAR . . . Rollpin, self-retained in shaft, is simply snapped into molded slot to position sintered gear. This application, by Ditto Inc., effects major savings in assembly. Rollpin's high shear strength is particularly valuable here.



REPLACING A MACHINED PIN . . . In the lubrication pump assembly of the Cummins HR-400 diesel engine, two Rollpins are used as positioning dowels. Rollpins are self-retaining in production-drilled holes . . . quick to assemble and easy to remove.



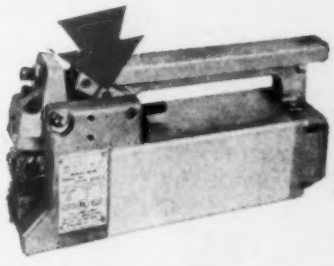
REPLACING A HEADED PIN . . . In this hinge pin application, Rollpin is simply and inexpensively driven in place, greatly reducing assembly costs. Constant spring tension holds Rollpin firmly in place . . . eliminates loosening of hinge due to wear.



REPLACING A SET SCREW . . . Paper feed rollers are quickly, economically pinned to shaft by Rollpins in this office machine made by Ditto Inc. Flush fit affords neat appearance . . . spring tension assures positive, permanent positioning of rollers.



REPLACING A RIVET . . . Rollpin serves as guide shaft for spring-loaded electrical interlock contacts. The Square D Company reports that rivet failure previously occurred at the clinched end under normal operating impact and vibration.



REPLACING A BOLT AND NUT . . . Rollpins act as fasteners and pivots for the linkages in this Miller Electric Welder. Rollpins may be used with a free fit in outer or inside members depending upon product design requirements.

6 more examples of assembly-time saving with ROLLPIN TRADE MARK

Rollpins are slotted, tubular steel, pressed-fit pins with chamfered ends. They drive easily into holes drilled to normal tolerances, compressing as driven. Reaming, tapering, extra assembly steps are eliminated. Rollpins are *locked* in place by the constant pressure they exert against hole walls. Inserted with an automatic press or by hand, Rollpins are readily removable with a drift or pin punch—and reusable again and again.

Elastic Stop Nuts with the famous red collar are another ESNA® product

ESNA

FOR DESIGN INFORMATION—fill out and mail our coupon. If your plans include applications similar to those on this page—or clevis pins, keys, taper pins or stop pins—you can't afford to be without details on how much faster and cheaper Rollpin can do the job.

Dept. R6-515, Elastic Stop Nut Corporation of America
2330 Vauxhall Road, Union, New Jersey

Please send me the following free information on ESNA self-locking fasteners:

☐ Rollpin bulletin and sample Rollpins ☐ AN-ESNA conversion chart
☐ Elastic Stop Nut Bulletin ☐ Here is a drawing of our product. What fastener do you recommend?

Name_____ Title_____

Firm_____

Street_____

City_____ Zone____ State_____

WILLSON®

plastic protective equipment

keep you on the safe side



WILLSON MONOGOGGLES®

Workers wear Willson protective equipment willingly because these MonoGoggles® and other safety devices shown are lightweight and comfortable. MonoGoggles® illustrated above are available in flexible *Polythene* and fully transparent *Acetate* for extra side vision. Interchangeable lenses in clear plastic or Tru-Hue green. Ask for Willson—the leading line of respiratory and eye safety equipment for industry, farm and home use.



Choice of clear or green plastic visors

WILLSON PROTECTO-SHIELD®

gives full face protection with a choice of 4", 6" and 8" visors. Ideal for many industrial operations. Also available with full flare at sides for extra protection against chemical splash.



Weighs less than an ounce!

WILLSON FEATHERSPEC®

. . . specially designed for light-duty operations. Comfortably worn over prescription glasses. Their clear or Tru-Hue green plastic lenses can be switched in a few seconds.

See your WILLSON distributor or write for bulletin

WILLSON PRODUCTS, Inc., 221 Washington St., Reading, Pennsylvania

Electrical

(*Continued from page* 418)

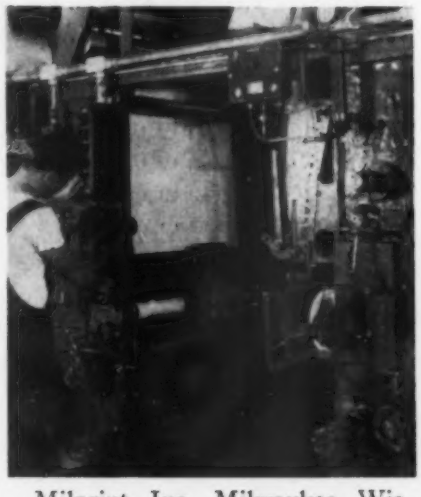
Class H Insulation Saves $2100



A bank of 22 mixing pumps in midwestern chemical plant, is exposed to a variety of soluble salts. Pumps were redesigned to permit larger capacity, and power output of each motor had to be raised 50%, or from 2 hp to 3 hp. Estimated cost of new 3 hp motors plus installation on new mounts and brackets was $4400. Rewinding the old motors with Class H electrical silicone insulation, plus reinstallation on the original mounts came to only $2300. Besides the $2100 saved, the company also got bigger overload capacity and greatly increased resistance to salt corrosion.

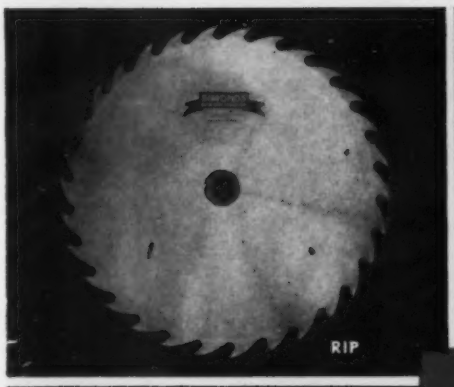
COST SAVING ITEM—504

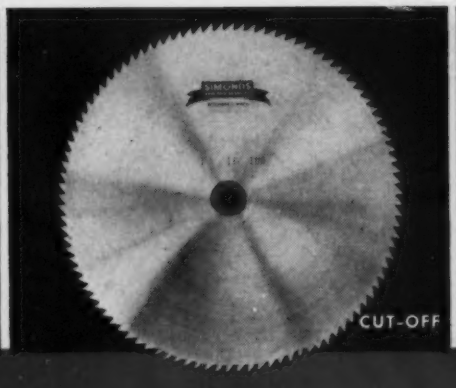
Savings in Rejects Will Pay for Equipment

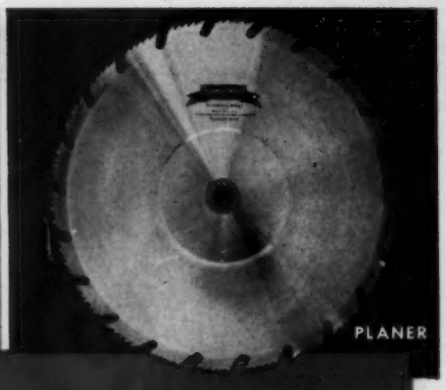


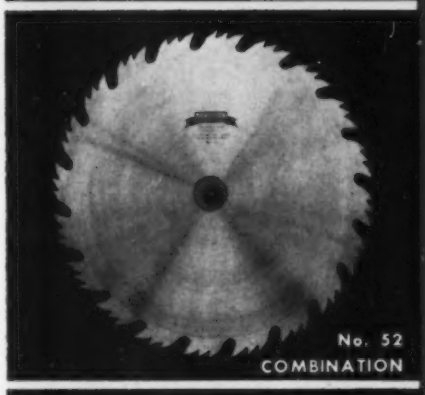
Milprint, Inc., Milwaukee, Wis., printers of multicolor wrappers on continuous rolls, installed electronic color register control on rotogravure press. This has permitted sub-

(*Please turn to page* 422)





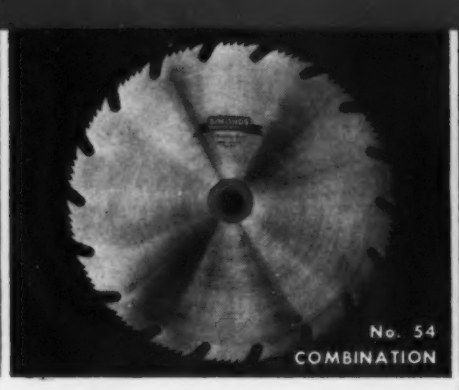


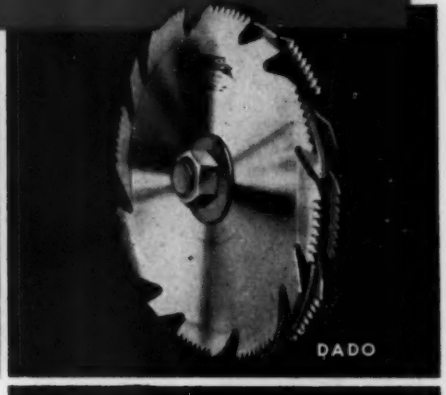


For any Type of Cutting on any Type of Machine...

"SIMONDS SAWS ARE THE BEST"

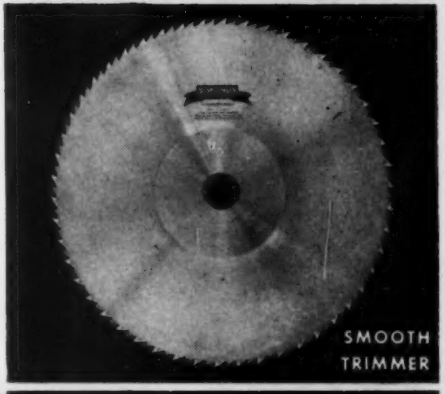






Simonds Saws are 100% Quality Controlled . . . from the tough, edge-holding electric furnace steel poured in Simonds own modern mills . . . to the special methods of heat-treating, grinding, tensioning and fitting by Simonds experienced sawmakers working under ideal conditions in the world's most up-to-date saw-manufacturing plant.

This "start-to-finish" control is your guarantee that every Simonds "Red Center" Saw you buy will cut smooth, fast and straight . . . will stand up to fast feeds . . . and will hold its cutting edge in the hardest woods. Your Simonds dealer is stocked to serve you . . . get in touch with him *today*.

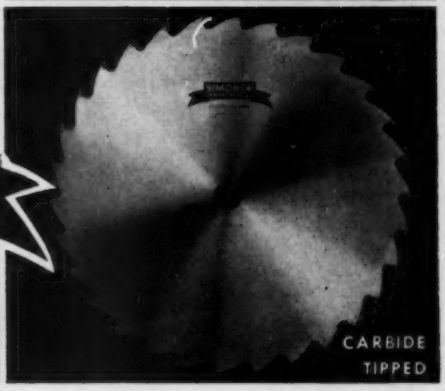


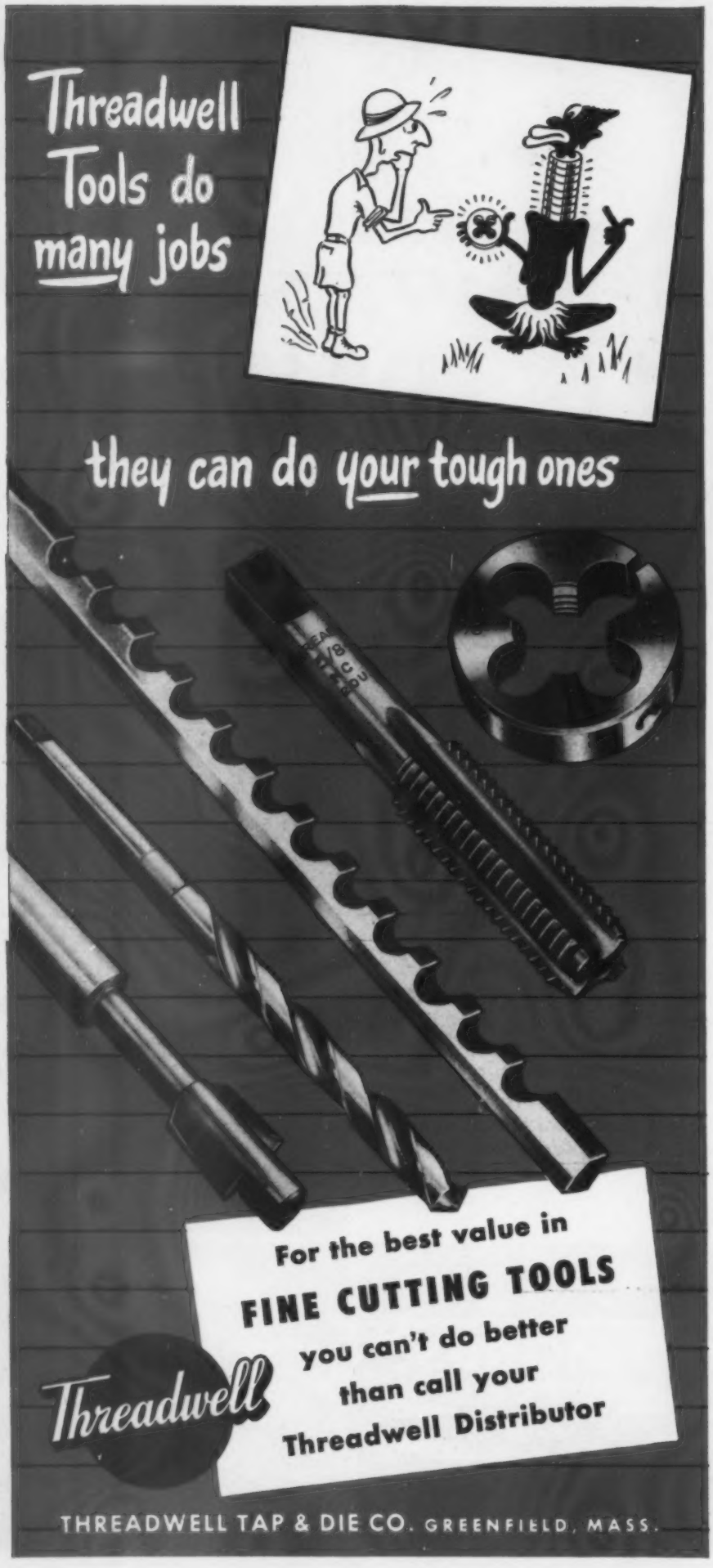


Serving Industry Since 1832

SIMONDS
SAW AND STEEL CO.
FITCHBURG, MASS.

Factory Branches in Boston, Chicago, San Francisco and Portland, Ore. Canadian Factory in Montreal, Que.





Electrical

(*Continued from page* 420)

stantial increase in press speeds, and close register is held even on such difficult materials as cellophane, pliofilm, and cellulose acetate. The company calculates that the savings in rejects will more than pay for the equipment within a year.

COST SAVING ITEM—505

Production Increased 450%; Costs Cut 66%



On this operation revolving door manufacturer has increased production 450% and cut costs 66%. The job calls for placing 16⅝" holes in each section of revolving doors. Some doors were stainless, others Muntz metal. It formerly took one man with portable electric drill 6½ hours to do a production lot. The same man using 2 lbs. of metal cutting electrode now does the same production lot in 1½ hours.

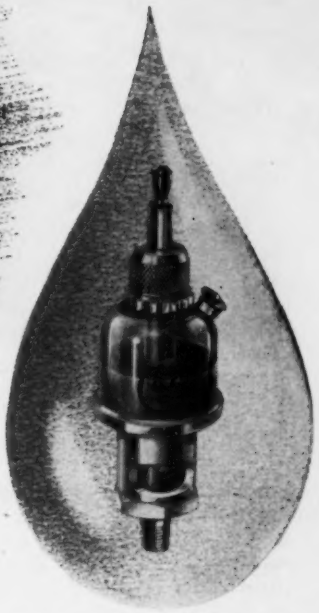
COST SAVING ITEM—506

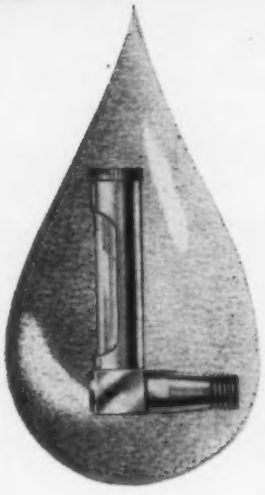
Brazing Speed Increased up to 800 Percent



(*Please turn to page* 424)

For Lubricating Devices Call On GITS First!





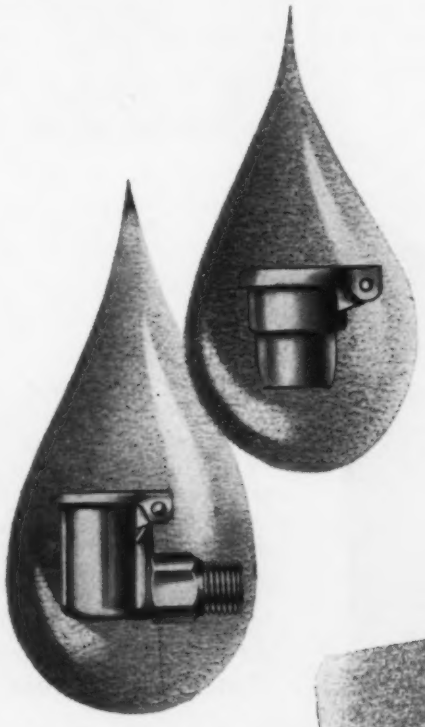
GITS Bros. covers the *entire range* of lubricating devices: Oil Hole Covers, Oil Cups, Grease Cups, Bottle Oilers, Gauges. Gravity-Feed, Wick-Feed, Constant Level, Vibrating Rod styles. Threaded or Drive-type. Elbow or Straight.

GITS Bros. offers the most complete selection of standard styles.

GITS consistent quality in design, materials and machining has made Gits Lubricating Devices the standard for industry for more than 40 years.

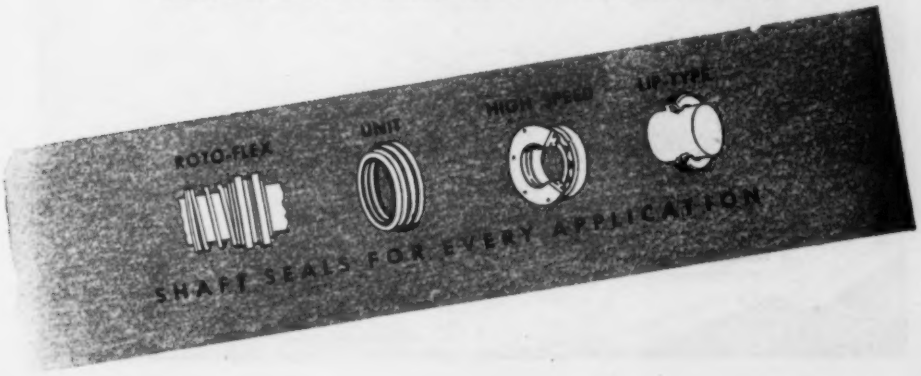
GITS Lubricating Devices are far-famed for solving tough oiling problems at low cost.

GITS Bros. Engineering Staff—true specialists in lubrication engineering—is at your disposal.



GITS BROS. MFG. CO.

1865 S. KILBOURN AVE. • CHICAGO 23, ILL.





BYRON M. GLAD
Portland Manager



WILLIAM J. McELROY
President
and General Manager



GERALD T. KNOTT
Asst. General Manager

ROUND SEATTLE CHAIN CORP.

For nearly forty years, Round Seattle Chain has been growing with the great Pacific Northwest. This important plant not only manufactures and distributes heavy chain for the lumber, fishing and marine industries, but *all types* of welded and weldless chain, chain hoists, electric hoists, trolleys, winches, etc.

ONE OF THE COMPANIES THAT MAKE

Round CHAIN

The coast-to-coast Round organization is justly proud of Seattle Chain and of the men who manage it. In all parts of the United States, other Round Chain Companies are equally well qualified to supply *a complete line of chain* in their respective territories. Wherever you are, there's a Round Chain Company nearby *to serve you better.*

Welded and Weldless Chain for Every Need!

SLING CHAINS • LOG CHAINS • HOIST CHAINS
HOISTS • HOOKS • FITTINGS AND ATTACHMENTS

ORDER FROM YOUR DISTRIBUTOR, OR CONTACT ONE OF THE

Round CHAIN COMPANIES



Electrical

(*Continued from page* 422)

The Cessna Aircraft Co., Wichita, Kans., has increased the speed of brazing operations on some parts by as much as 800% through the use of two 20-kw induction heaters, as compared with production by previous torch brazing methods. Heaters are used for brazing piston rods and clevis assemblies, brazing caps on hydraulic ram cylinders, and case hardening bearing surfaces of various parts. Besides increasing the speed of brazing operations, use of the heaters has lowered rejects by 80%.

COST SAVING ITEM—507

Electronic Press Drive Saves $30,000

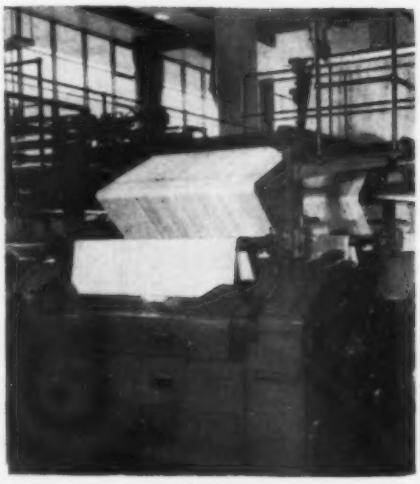


Illustration shows one of press lines in new Baltimore Sun plant driven by electronic drive. Saving by putting in the electronic press drive rather than comparable two-motor A-C drives is placed at $30,000. The saving, in spite of somewhat higher first cost of the equipment, is due to considerably less power wiring between motors and control, and the elimination of the need for extra ventilating and air conditioning equipment—there are no secondary resistors in the electronic drive to throw off heat.

COST SAVING ITEM—508

Metal Cutting Electrode Does "Impossible" Job

In this municipal operation, the job was to convert old, dirty cast iron 16" dia. pipe into tees for pressure sewer line. Attempt at torch cutting cracked castings. Using

(*Please turn to page* 426)



Figuring Paint Costs by the Gallon

If you REALLY want to save money!



The famous Barreled Sunlight "on-the-wall" test lets you see with your own eyes why the true yardstick of paint value is not price per gallon but *cost per square yard.* Men responsible for volume paint purchases in leading industrial plants and other large buildings have seen it and been convinced. May we show it to YOU?

It's perfectly natural to think of paint costs in terms of price per gallon. Paint is a liquid. It's sold by the gallon — and all gallons *look* the same size.

But if you really want to save money, try figuring your paint costs by the *square yard.* You'll find that famous "Barreled Sunlight," even though it may cost a few cents more per gallon, will cost you far less *on the wall* for these four important reasons:

1. **It takes more thinner** — and that means more paint "ready for use" and lower material costs.
2. **It hides better even after thinning** — does a "bang-up" job in one coat where other paints often take two.
3. **It covers more square feet per gallon** — takes fewer gallons than other paints to do the same job.
4. **It goes on faster and easier** — cuts labor expense which today is at least 80% of total painting costs.

An actual "on-the-wall" test — right in your own plant — will prove these cost-cutting advantages of Barreled Sunlight, just as it has to hundreds of other alert paint buyers. Our representative will be glad to arrange such a test — at your convenience and with absolutely no obligation. Write — and he'll call.

BARRELED SUNLIGHT PAINT COMPANY, 18-E Dudley St., Providence 1, R.I.

Barreled Sunlight® *Paints*

In whitest white or clean, clear, wanted colors, there's a Barreled Sunlight Paint for every job

IT ALWAYS COSTS MORE NOT TO PAINT!

For over half a century the symbol of quality and dependability among paint buyers for leading industrial, institutional and commercial buildings

Booth 305—NAPA Show, Convention Hall, Atlantic City—May 25 to 28

The Greatest News For Electric Drill Users

PET TOOLS

SUPERDUTY PORTABLE ELECTRIC DRILLS

For Production—Maintenance—Construction Work



SUPERDUTY ¼" PORTABLE Electric Drills—Standard Duty, Heavy Duty, and Extra Heavy Duty Models; each available in 8 speeds, 500 to 5000 rpm. Choice of pistol or saw type grip. 48 styles and models.



NEW also Superduty ⅜" and ½" Drills

SUPERDUTY DRILLS OFFER

Reserve Power • Ball and Needle Bearings • Heat-treated, Precision-cut Gears • Compact, Streamline Design • Electronic Dynamic Balancing • Top Quality, Rugged Construction • Models and Styles to meet use requirements and operator preference.

All These Features *and at Lower Cost*

Ask your distributor, or write for complete details to

PORTABLE ELECTRIC TOOLS, INC.

343 West 83rd Street, Chicago 20, Illinois

In Canada: 369 Danforth Road, Toronto 13, Ontario

PET TOOLS **SUPERDUTY** Portable Electric Drills

for Production • Maintenance • Construction Work

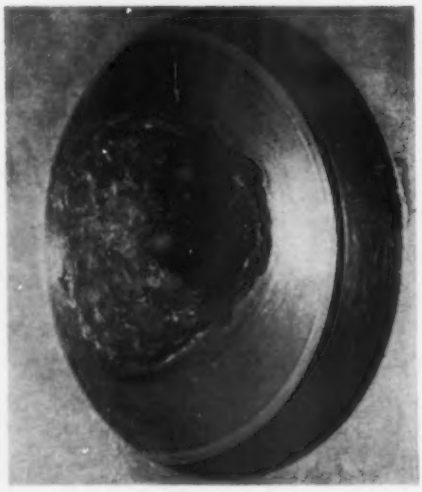
(*Continued from page* 424)



metal cutting electrode, 8" dia. openings were easily cut through 1¼" wall pipe. As final operation, the electrode was used to make 45 deg. bevel around hole for the welding of cast iron pipe insert. It is stated that the job would otherwise have been impossible.

COST SAVING ITEM—509

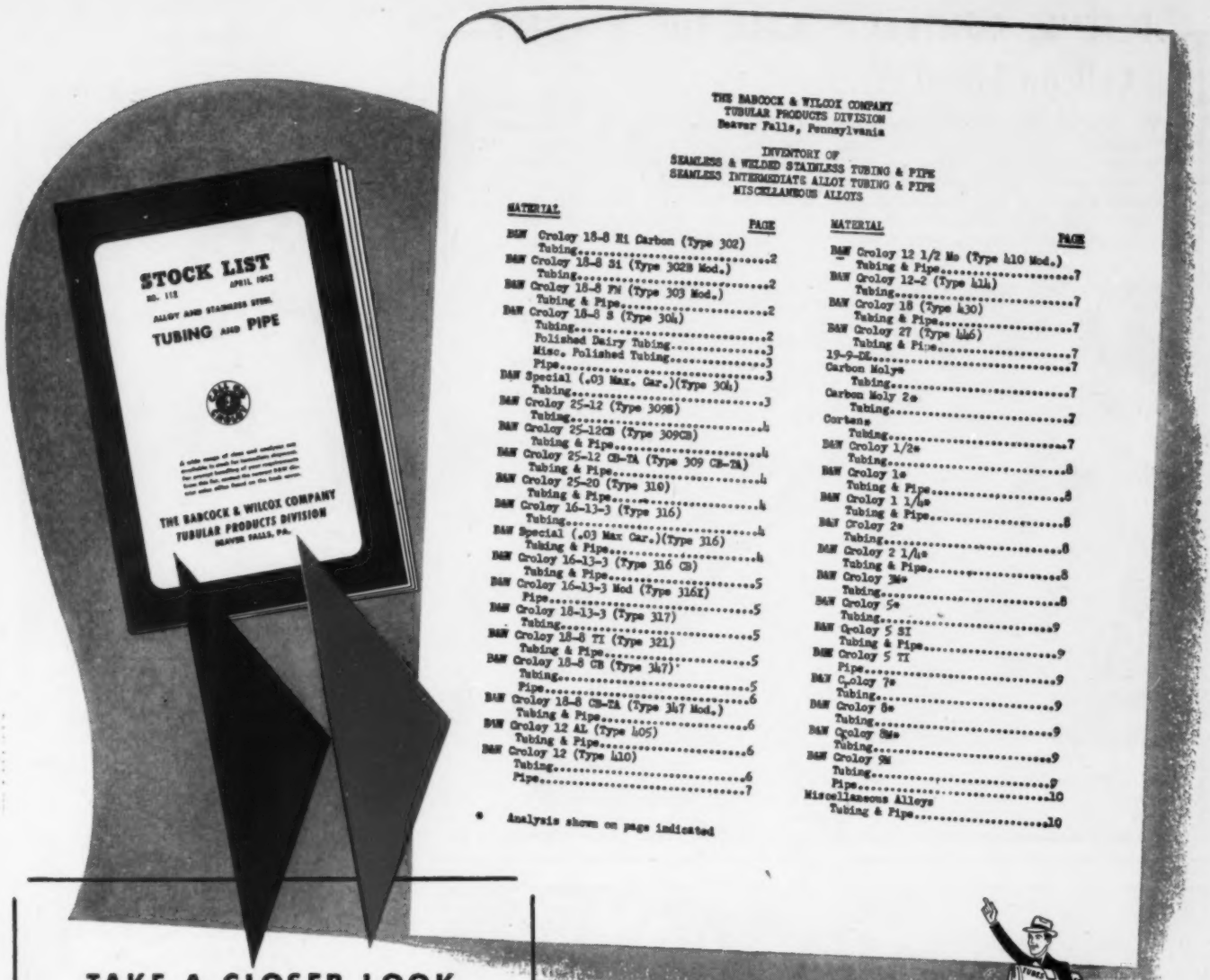
Metal Cutting Electrode Saves Time and Labor



These round cast iron chuck heads are 10" in diameter and 4" thick. When cast, they turn out to be ridden with blow holes. Formerly three men had to work steadily with rotary files gouging out imperfections. Now, by positioning the casting and using ⅛" metal cutting electrode, the bad spots are quickly and easily gouged out with enormous savings in time and labor.

COST SAVING ITEM—510

(*Please turn to page* 428)



TAKE A CLOSER LOOK

HERE

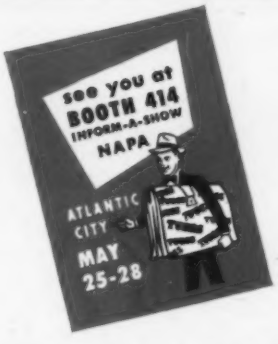
FOR QUICK DELIVERY OF SMALL QUANTITIES



The B&W monthly stock list is *must* reading for purchasing agents hard-pressed to find a wide variety of alloy and stainless tubing and pipe in a hurry for pressure and mechanical uses.

If you are not already receiving the B&W stock list every month, write to us and we'll be happy to send it to you.

This stock covers overages, short lengths, etc., produced against orders for mechanical and pressure tubing involving a number of different specifications and grades. Because tubes are critical materials, ask Mr. Tubes, — your B&W Tube Representative — to help you determine the best available kind for your needs. He may be able to save you time and material.



THE BABCOCK & WILCOX COMPANY
TUBULAR PRODUCTS DIVISION

General Offices & Plants
Beaver Falls, Pa.—Seamless Tubing; Welded Stainless Steel Tubing
Alliance, Ohio—Welded Carbon Steel Tubing

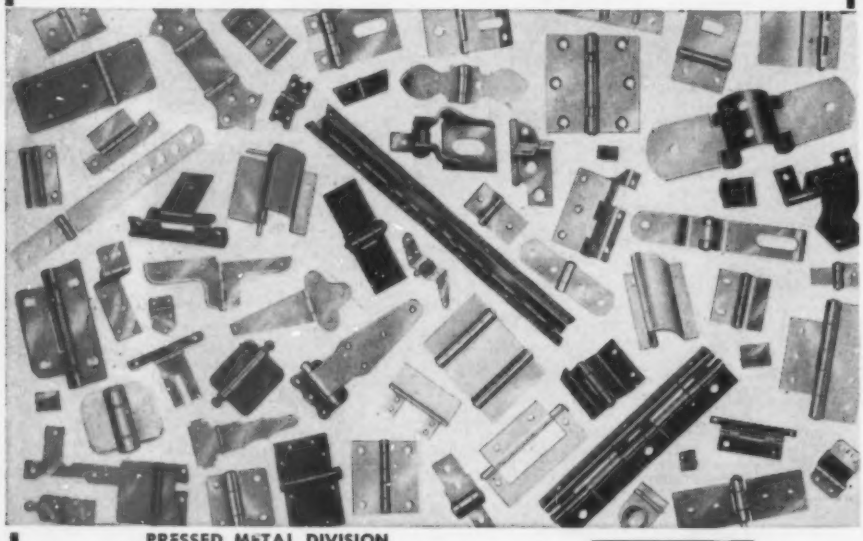
Sales Offices: Beaver Falls, Pa. • Boston 16, Mass. • Chicago 3, Ill. Cleveland 14, Ohio • Denver 1, Colo. • Detroit 26, Mich. • Houston 2, Texas Los Angeles 17, Cal. • New York 16, N. Y. • Philadelphia 2, Pa. St. Louis 1, Mo. • San Francisco 3, Cal. • Syracuse 2, N. Y. Toronto, Ontario • Tulsa 3, Okla.

B&W SEAMLESS and WELDED TUBES

TA-1675-G

DEFENSE CONTRACTS CALL FOR HINGES?
Call on STANLEY...

You just specify the hinge you want —Stanley does the rest, from first sketch to finished product.
Stanley gives you the advantage of expert designers and production engineers—complete research and tool-making facilities—and the plating and finish best suited to your needs. As the world's largest producer of hinges, Stanley is geared for efficient production to meet your D. O. deadlines. Write for full information—not only on special hinges, but drawings and stampings as well—now!



PRESSED METAL DIVISION
The Stanley Works, New Britain, Conn.
New York Detroit Los Angeles
Chicago San Francisco Seattle

STANLEY
Reg. U.S. Pat. Off.

HARDWARE • TOOLS • ELECTRIC TOOLS • STEEL STRAPPING • STEEL



Electrical

(Continued from page 426)

Cleaning Costs Cut 58% with Ultrasonic Vibrations



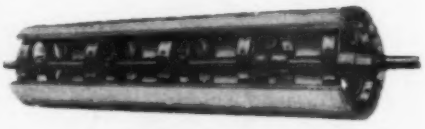
Illustration shows shaver heads being cleaned (left) and then rinsed at Schick, Inc., Stamford, Conn., utilizing ultrasonic vibrations. Cleaning costs have been cut 58% by use of the ultrasonic cleaner. The process is based on the finding that the action of many standard cleaning solvents is increased 10 to 100 times by high-frequency sound (300-1000 kc). The inaudible sound waves set up in the liquid accelerate the removal of oil, grease, tars, resins, metal chips, and machining and buffing compounds.

COST SAVING ITEM—511

Materials—Components

(Continued from page 167)

Assembly Costs Reduced by Tap Screw



Textile Spool illustrated made by Allan Beam Co., New Bedford, Mass. is manufactured from cast iron and wood; spools range up to 5′ in length, with 42″ flange head. Use of especially designed tap screw in precise countersinking operation involving positive affixing of staves to the cast iron reinforcing plates, resulted in reclaimed assembly time and reduced assembly costs. Pre-tapping operations have been elimi-

(Please turn to page 430)



Gaylord Boxes Give You Extra Sales Messages

They're Traveling Billboards

Shipping containers carrying your trademark, sales message or slogan provide extra sales contacts. And they provide unusual opportunity for seasonal merchandising or special promotion deals.

Because good first impressions are good business it pays to ship your products in distinctive Gaylord Boxes.

For helpful information on "advertising on the move" get in touch with your nearest Gaylord Sales and Service office.

It's the unseen quality that gives you the extra margin of safety in

Gaylord Boxes

GAYLORD CONTAINER CORPORATION

General Offices: SAINT LOUIS

CORRUGATED AND SOLID FIBRE BOXES • FOLDING CARTONS • KRAFT BAGS AND SACKS • KRAFT PAPER AND SPECIALTIES

New York • Chicago • San Francisco • Atlanta • New Orleans • Jersey City • Seattle • Indianapolis • Houston • Los Angeles • Oakland • Minneapolis • Detroit • Columbus
Fort Worth • Tampa • Dallas • Cincinnati • Des Moines • Oklahoma City • Portland • Greenville • St. Louis • San Antonio • Memphis • Kansas City • Bogalusa • Chattanooga
Milwaukee • Weslaco • New Haven • Amarillo • Appleton • Hickory • Greensboro • Sumter • Jackson • Miami • Omaha • Mobile • Philadelphia • Little Rock • Charlotte • Cleveland

HASSALL SERVICE



Special cold headed products

. . . nails • rivets • screws

. . . made to order

. . . and to your specifications in any metal. Large raw material inventory for your convenience. Send drawing — advise quantity.

Free catalog on request.

SPECIAL NAILS RIVETS SCREWS

Hassall

ESTABLISHED 1850

JOHN HASSALL INC.

404 Oakland St.
Brooklyn 22, New York

Davidson

rubber parts for industry



● SOLID, HARD OR SPONGE RUBBER PARTS MOLDED TO CUSTOMERS' SPECIFICATIONS FROM NATURAL AND SYNTHETIC RUBBERS . . .

● WRITE FOR NEW 1952 CATALOG

THE Davidson RUBBER COMPANY
50 BRIGHTON STREET BOSTON 29, MASSACHUSETTS

(*Continued from page* 428)

nated, and the normal "screw backing out" tendency eliminated, thus resulting in greater rigidity.

COST SAVING ITEM—512

Spun from Blank in Nine Seconds



In production of this seamless light weight muffin pan made by United Aircraft Products, Inc., Dayton, Ohio, mill coils of proper alloy of aluminum are automatically fed into 50 ton presses. In one quick operation the aluminum is blanked to size, flanged and stamped with trade name and patent numbers. Cold blanks are placed in special spinning presses and finished pans are automatically ejected in from 6 to 9 seconds. In that brief time 12 uniform cups have been spun. By conventional methods it would have been necessary to draw each cup separately, then attach them individually to the pierced blank.

COST SAVING ITEM—513

Production Upped 350%

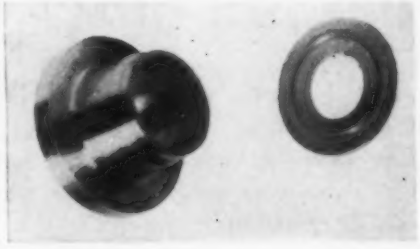


Illustration shows punch for a compound die used to blank and extrude rings from 80-20 dead soft red brass. Foreman of toolroom had several of these punches made at $25.00 each. Punches broke after running short while. Each broken punch cost 8 hours lost time. Changing to a tougher oil-hardening steel, new punches proved entirely satisfactory, with result that output is now up well over 350%.

COST SAVING ITEM—514

(*Please turn to page* 432)

Reduce inventories, cut costs, with new BullDog Vacu-Break Safety Switch Line

New BullDog *Master Line* cuts out duplication. Just 37 Type A switches now let you fill any Type A, C or D application *at C prices!*

Savings! Easy handling! Extra safety! They're all yours with the new, *standardized*, streamlined BullDog Vacu-Break Master Safety Switch line. Now, only 37 nonduplicating Type A switches fill any possible A, C or D requirement. They replace hundreds of confusing catalog numbers, let you reduce inventories, cut costs. And, because they are mass-produced and standardized, these Type A switches sell *at C prices* — a value unmatched by anyone. Check all the tremendous advantages this new line offers you, below. And place your *next* safety switch order with your local BullDog supplier.

LOW PRICE . . . a Type A switch at Type C prices!

NEW VERSATILITY . . . only 37 Type A devices fill any A, C, or D application. Each switch replaces any one or several formerly stocked!

LOWER INVENTORIES . . . fewer items to stock; a more *balanced* inventory with less investment!

SAVINGS IN SPACE . . . no duplicating items to tie up storage space!

SIMPLE TO ORDER . . . only 37 catalog numbers instead of hundreds. Less time wasted on long, confusing catalog lists!

EASY INSTALLATIONS . . . simplified mounting, anywhere. Ample knockouts and generous wiring space for savings in time, materials!

TOP PERFORMANCE . . . self-aligning Clampmatic Contacts give unmatched quick, positive, *bolt-tight* connections!

LESS MAINTENANCE . . . Exclusive Vacu-Break protection practically eliminates burned or pitted contacts.

GREATER SAFETY . . . Vacu-Break chamber smothers arcs instantly, protects against high contact temperatures.

HIGH QUALITY . . . listed by Underwriters. Quality-engineered and -built throughout!

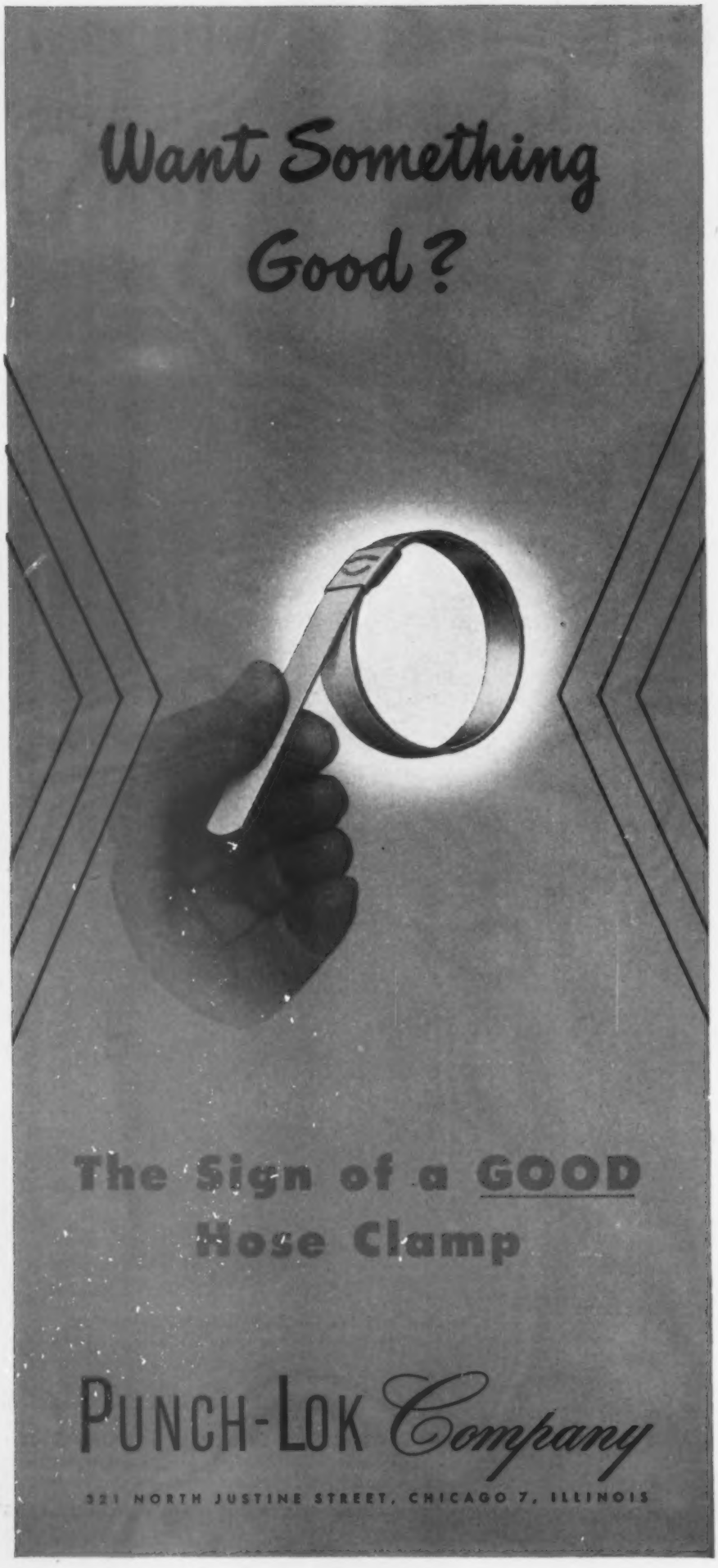


For full details on this revolutionary safety switch line, see your BullDog Distributor or write for Bulletin 514.

BULLDOG

BULLDOG ELECTRIC PRODUCTS COMPANY
DETROIT 32, MICHIGAN • FIELD OFFICES IN ALL PRINCIPAL CITIES
IN CANADA: BULLDOG ELECTRIC PRODUCTS OF CANADA, LTD., TORONTO
PIONEERS IN FLEXIBLE ELECTRICAL DISTRIBUTION SYSTEMS

1902-1952 . . . SERVING INDUSTRY FOR 50 YEARS WITH FINER ELECTRICAL PRODUCTS



(*Continued from page* 430)

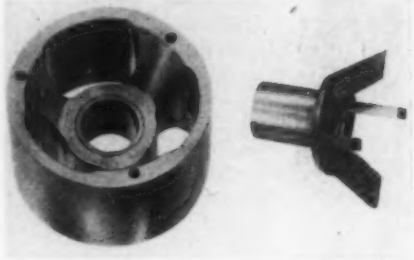
Costs Cut 20% and 75% by Investment Casting



Upper unit is clutch stop pawl. Precision investment casting reduced its cost 20%. Formerly a four piece assembly, it is now cast as one piece. It is used as cast, except for drilling and reaming one hole. Milling operation and assembly eliminated. Lower part is drum lock pawl. Precision investment casting reduced cost 75%. Formerly it was a two-piece assembly but is now cast as one piece. It is used as cast except for drilling and reaming one hole. Milling operation and assembly eliminated.

COST SAVING ITEM—515

Production Costs Cut More than 50%

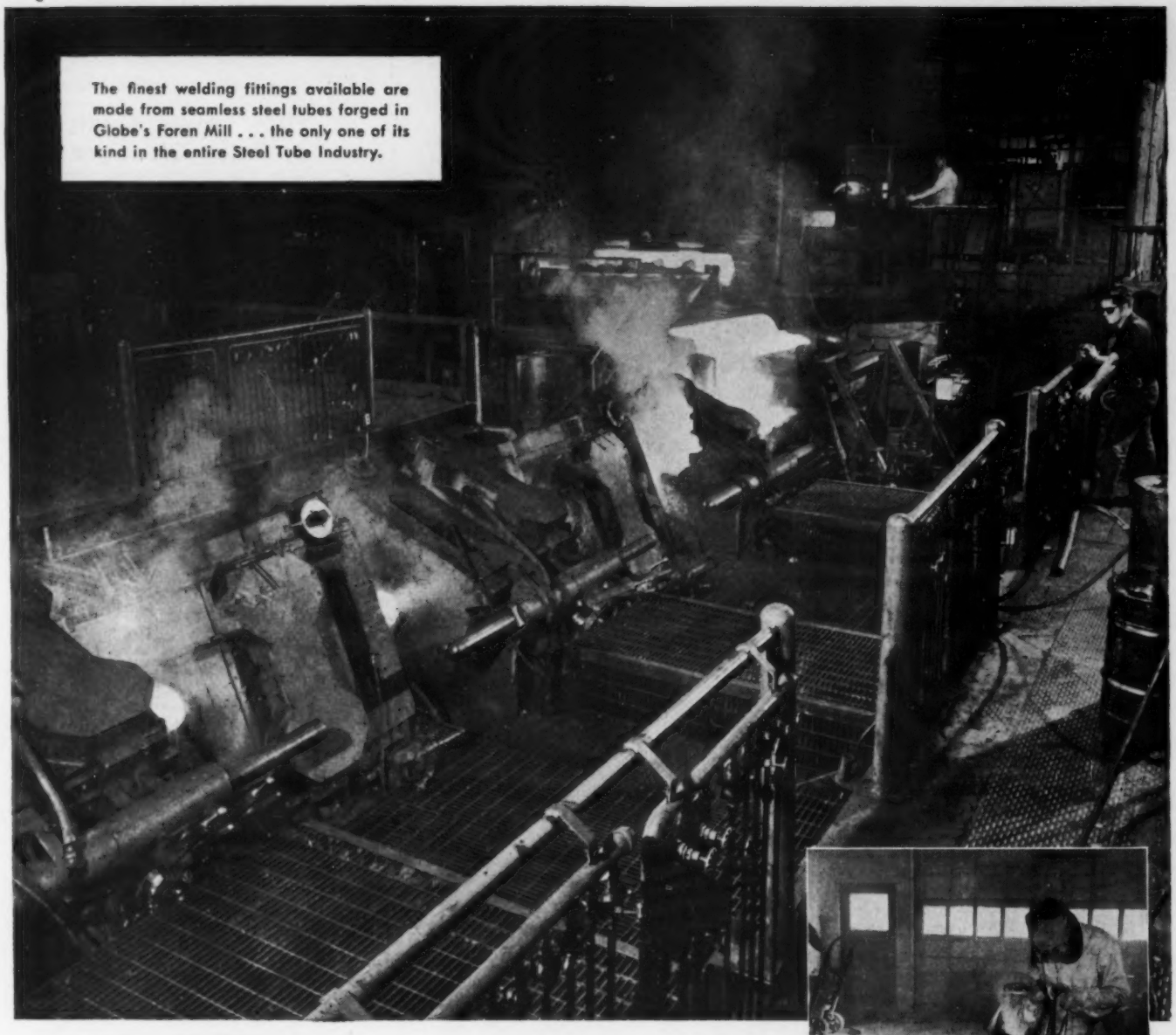


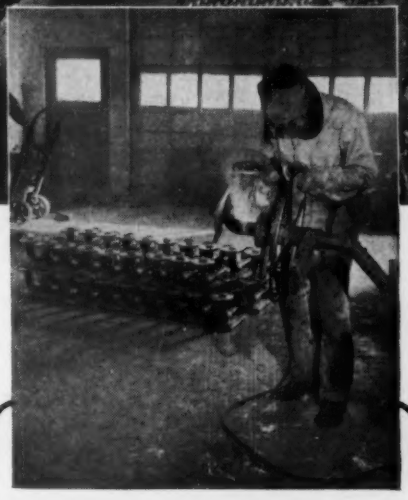
Originally produced by machining these stainless steel rotors and stators required a total of 12 operations. Now that they are being produced by precision casting process, the total finishing operations have been cut to 5, and the cost of producing them has been reduced by more than 50%. The rotor required 5 machining operations originally, and now requires only two. Net production saving on this part is 52%, even though precision-cast part costs about 6 times more than the bar stock from which part was formerly machined. The stator required 7 machining operations originally, and now requires only 3, one of which is an electro-polishing operation. Net production costs were cut 51%.

COST SAVING ITEM—516

(*Please turn to page* 434)

The finest welding fittings available are made from seamless steel tubes forged in Globe's Foren Mill . . . the only one of its kind in the entire Steel Tube Industry.





GLOBE WELDING FITTINGS ARE BORN HERE

Only Globe seamless welding fittings are precision processed from *billet* . . . to *tube* . . . to *fitting*

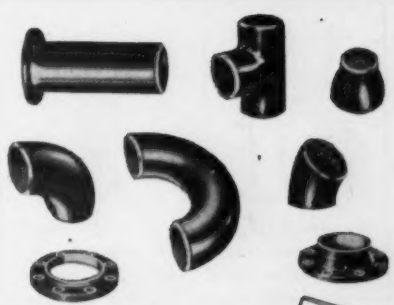
Globe precision-process manufacture begins with the billet — continues through the making of the seamless steel tube — and extends through to the production of the finished fittings.

The exacting controls in Globe's precision process — plus specialized research, testing and engineering insure uniform high-quality and close tolerances. Be sure of dependable fittings . . . always specify Globe.

GLOBE STEEL TUBES CO., Milwaukee 46, Wisconsin

Chicago • Cleveland • Detroit • Philadelphia • St. Louis
Denver • Houston • San Francisco • Glendale, Cal.

Producers of Globe seamless stainless steel tubes — Gloweld welded stainless steel tubes — alloy — carbon — seamless steel tubes — Globeiron (high purity ingot iron) seamless tubes — Globe Welding Fittings.



For complete information on the finest welding fittings available anywhere, send for the Globe Welding Fittings Catalog.



Pyrene
REG. U.S. PAT. OFF.

CAREFULNESS ISN'T ENOUGH
YOU NEED PYRENE, TOO!



There's a Pyrene for every fire hazard

The watchword of fire prevention is *Be Careful.* But fire may come—any time. When it does, Pyrene* can make the difference between a harmless scare and a gutted business. Whatever your fire hazard, there's a Pyrene to cope with it—for Pyrene makes everything from hand extinguishers to complete automatic fire-fighting systems.

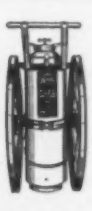
*T.M. Reg. U.S. Pat. Off.



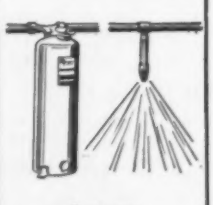
Vaporizing Liquid
Always dependable, multi-use extinguisher.



Cartridge-Operated
For ordinary fires. No annual recharging.



Chemical Foam
For flammable liquids, ordinary combustibles.



Systems
Large and small, manual and automatic.

. . . and other approved extinguishers

PYRENE MANUFACTURING COMPANY
578 Belmont Avenue Newark 8, New Jersey
Affiliated with C-O-Two Fire Equipment Co.

(*Continued from page* 432)

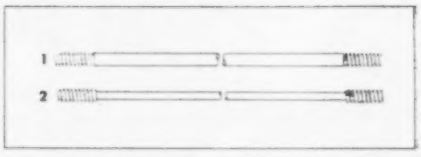
90% Lower Cost; 3 Times Stronger



This is justifying cam used in a business machine. It was originally designed as a series of 18 stampings to be assembled by pinning and brazing. It is now precision investment cast, the new method making for a saving of 90%, and at the same time the strength and wear resistance of the cam is tripled. No hand filing or fitting is required in assembling the cast parts and all are completely interchangeable.

COST SAVING ITEM—517

Design Change Saves $30 Per Thousand



Slight change in design of double threaded rod illustrated, saved material and reduced the cost by $30. per M for a Midwest manufacturer, without impairing efficiency of part. Upper rod is made with a cut thread on each end of ¼" wire. Lower rod is made with .214/216" diameter wire with threads *rolled* on each end. Thread diameter is same as on ¼" rod yet savings in material and manufacturing amounted to $30. per M. There is no difference in tensile strength of the two rods.

COST SAVING ITEM—518

(*Please turn to page* 436)

Straight-chromium grades of U·S·S Stainless Steel



may be the answer to your supply problems

By actual trial of straight-chromium Stainless Steels, more and more manufacturers are discovering hitherto unexplored and highly desirable qualities both in fabrication and performance. These straight-chromium Steels may well be the solution to many production problems in your plant today.

The straight-chromium grades—including U·S·S 17 (AISI Type 430) and U·S·S 12 (AISI Type 410)—are now available without CMP tickets. From the standpoints of end use and of fabricating procedures, these grades have been found to be acceptable alternates for nickel-bearing grades in many applications.

U·S·S 17 and U·S·S 12 Stainless Steels offer you durability, corrosion resistance and long life. While fabricating procedures differ somewhat from nickel-bearing grades, they offer no difficult problems.

With the end of restrictions on use of nickel apparently still far off, these straight-chromium grades deserve the close attention not only of yourself but also of your production men. Our Stainless engineers will be glad to assist you in studying these excellent steels to determine whether they are suitable for your product. There's no obligation.

UNITED STATES STEEL COMPANY, PITTSBURGH • AMERICAN STEEL & WIRE DIVISION, CLEVELAND • COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO
NATIONAL TUBE DIVISION, PITTSBURGH • TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA. • UNITED STATES STEEL SUPPLY DIVISION, WAREHOUSE DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

U·S·S STAINLESS STEEL

USS

SHEETS · STRIP · PLATES · BARS · BILLETS · PIPE · TUBES · WIRE · SPECIAL SECTIONS

2-917

UNITED STATES STEEL

..to 95° below zero

REVCO SUB-ZERO CHESTS

For Industrial Processing, Aviation, Chemical, Plastics, Oil, Rubber, and Research-Lab Work



AVAILABLE NOW

REVCO Sub-Zero Chest For Testing, For Shrink Fits, For Seasoning Gauges and Precision Tools . . . Completely equipped ready for operation, will accommodate parts or assembled units up to 23" long, 12½" deep, 9" high in the 1.5 Cu. Ft. model and up to 47" long, 16" deep and 15" high in the 6.5 Cu. Ft. model. Revco Sub-Zero Chests are designed and built to meet highest performance standards. They feature temperatures of 95° and 85° below zero, respectively, upon continuous running in normal room temperature. Other controlled Low-Temperatures readily attained.

REVCO *Rivet Coolers*

For AIRCRAFT APPLICATION

Equipped with 90 rivet canisters, each 2" in diameter and 7¼" long. Six convenient racks each hold 15 canisters. Operates efficiently at temperatures as low as minus 30°F.

Write for Complete Specifications & Prices

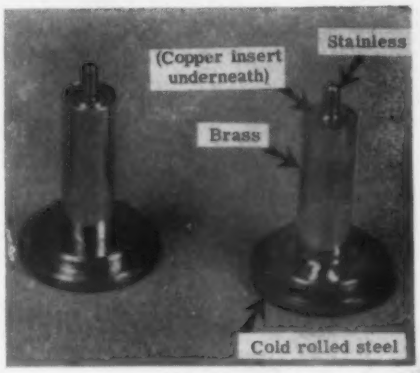


Revco, Inc. **DEERFIELD, MICH.**

Materials—Components

(*Continued from page* 434)

Silvertype Alloy Saves 32%



Component of magnetic gas valve made by Minneapolis Honeywell is made of four different metals. Part must be leak-proof and simply press-fitting stainless steel screw into copper insert, or the brass valve sleeve into the cold rolled steel valve seat was not enough. It was found that a special silver-type alloy flows easily into the joint area. By its use rejects were reduced, as were the amount of time and alloy used, thus effecting an overall saving of some 32%.

COST SAVING ITEM—519

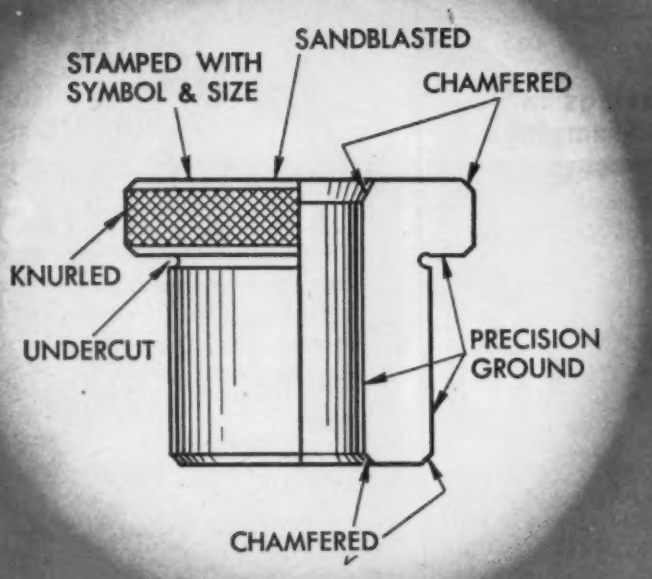
Plymetal Preforms Cut Brazing Costs More than 40%



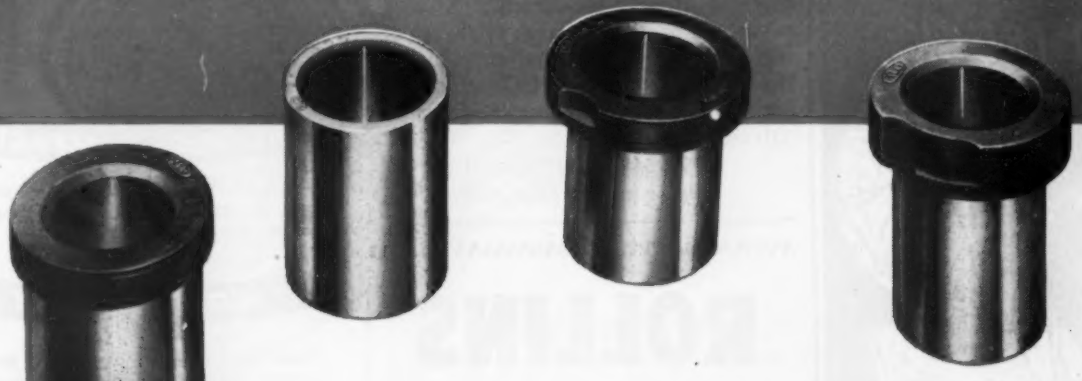
Use of plymetal shims helped the manufacturer to double production in brazing carbide tips on this cutter, for a 40% saving in labor costs. Also, previously it was necessary to clean the cutters by sandblast and to remove excess solder with rubber wheels. Present method, using induction heating and the preformed plymetal has eliminated need for clean up and enabled manufacturer to cut the quantity of brazing material required by approximately 35%.

COST SAVING ITEM—520

(*Please turn to page* 438)



THE INSIDE STORY OF EX-CELL-O DRILL JIG BUSHINGS





Here are a few good reasons why Ex-Cell-O Drill Jig Bushings last longer and perform better:

1. Premium grade tool steel is selected for wear resistance and heat treated to 62-64 Rockwell "C".
2. Every bushing must measure up to Ex-Cell-O precision standards, as well as to A.S.A. standards.
3. High finish is ground on inside and outside diameters, and *under the head* for perfect bearing.

Take a tip from the country's largest users of drill jig bushings. Order from the convenient Ex-Cell-O Catalog.

To satisfy the needs of your purchasing and engineering departments be sure to have an adequate supply of Ex-Cell-O Bushing Catalog, Bulletin 35371. Ask for the copies you need.

XLO
EX-CELL-O for PRECISION

EX-CELL-O CORPORATION
DETROIT 32, MICHIGAN

MANUFACTURERS OF PRECISION MACHINE TOOLS • CUTTING TOOLS
RAILROAD PINS AND BUSHINGS • DRILL JIG BUSHINGS • AIRCRAFT
AND MISCELLANEOUS PRODUCTION PARTS • DAIRY EQUIPMENT



Man with the Colson®

UNIVERSAL DRUM TRUCK

Easily does the work of 2



The COLSON Universal Drum Truck is the answer to fast, safe handling of drums and barrels. It locks any size container between the adjustable chimb hook and pick-up tips, lifts it easily and carries it with the weight evenly balanced over the wheels.

Other work-saving COLSON materials handling equipment includes hand trucks, platform trucks, Lift-Jack systems and wheels and casters to meet every industrial or commercial application.

Write us or consult the "yellow pages" (under "Casters" or "Trucks—Industrial") for the COLSON office near you.

THE COLSON CORPORATION
ELYRIA, OHIO

Please send free 56 page catalog "Colson Materials-Handling Trucks".

Name.....
Position.....
Company.....
Address.....
City.....Zone....State.....

THE COLSON CORPORATION
ELYRIA, OHIO

Materials—Components

(*Continued from page* 436)

41% Savings in Threaded Stampings



By eliminating one costly operation, large electrical manufacturer, by capitalizing on process for tapping small parts at the same time they are stamped, purchased for $2.00 per M, parts which had formerly cost him $.40 per M to stamp and $3.00 per M to tap. Desired class of fit was maintained. Direct saving 41%. In addition to the saving in labor, rejections were materially reduced, and handling costs, and process inventory was virtually halved.

COST SAVING ITEM—521

(*Please turn to page* 440)

ROLLINS



Fleet Leasing

Five or More Cars and Trucks Leased Yearly for Business Purposes.

No Capital Investment
100% Tax Deductible

New cars yearly • Unlimited mileage
Better employee relations!
Save thousands of dollars!

Rates as low as $1.77 per day

"Troubles cease when you lease"

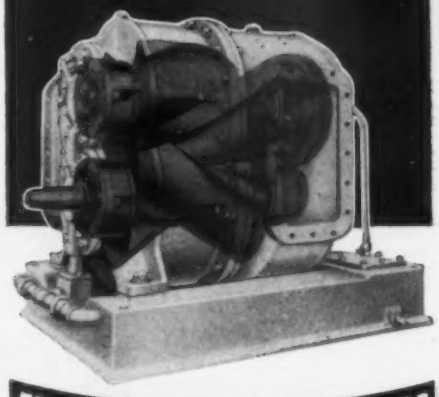
Write for transportation survey to Dept. P-5

BOX 127, REHOBOTH BEACH, DELAWARE
Phone 3261

Standardaire

AXIAL FLOW
POSITIVE PRESSURE
BLOWERS

utilize an exclusive principle of compressing air. It's new and different . . . a major advance in blower design.



ENGINEERED COMPACTNESS

Standardaire Blowers are designed to give the greatest output per pound of weight for a given size unit.

HIGH EFFICIENCY

Desired capacity produced in a smaller blower with less power consumption.

RELIABILITY

Dependable service in diversified uses has proved the reliability of Standardaire Blowers.

ADAPTABILITY

Air or gas handled equally well under a wide range of pressure or vacuum conditions. Standardaire Blower design permits direct or pulley drive.



For detailed information write for Publication No. 90

READ STANDARD
CORPORATION
370 LEXINGTON AVE. • N.Y. 17, N.Y.

from nozzle to hose nut...

built with you in mind

PREST-O-WELD
Trade-Mark

CUTTING BLOWPIPE

Type C-112



Sheet, plate, or 10 in. of cast steel . . . it makes no difference. With a C-112 Blowpipe, *all* hand-cutting jobs are run-of-shop routine. And it's only natural, because everything that goes into a PREST-O-WELD Blowpipe has to contribute to its low-cost, dependable operation and smooth, easy handling. From drawing board to you, *top performance on your hand-cutting jobs* is the first consideration.

Strong materials, precisely worked and sturdily assembled, enable the C-112 Blowpipe to take the toughest punishment and come back for more. Pressure forgings give strength without excess weight. Thick-walled gas tubes are rigidly anchored to withstand rough handling. Rugged valve stems with long-lived plastic packing provide a positive, gas-saving seal. Feather-touch control and stable preheat flames encourage accurate work; perfect balance reduces operating fatigue.

There's a C-112 Blowpipe for every hand-cutting need. Choose the style—75-deg., 90-deg., or 180-deg. head angle—that suits you best. Choose, too, from a wide variety of heat- and wear-resisting copper nozzles. There are 5 sizes and 4 styles for general-purpose cutting with acetylene or other fuel gases; 7 sizes and 5 styles for cutting cast iron, rivets and sheet metal, and for groove-cutting.

Ask your local LINDE Jobber about the PREST-O-WELD C-112 Blowpipe today. He'll show you why it stands up under hard usage and abuse . . . why it keeps paying off long after other cutting blowpipes quit.

Get it from your LINDE Jobber

If you don't know him, write us for his name and address.
LINDE AIR PRODUCTS COMPANY,
a Division of Union Carbide and Carbon Corporation,
30 East 42nd Street,
New York 17, N. Y.

The term "Prest-O-Weld" is a registered trade-mark of Union Carbide and Carbon Corporation.

CONTAINERS... Scientifically Designed

SHIPPING SUPERSTRONG CONTAINERS





All of our boxes and crates are specially designed for YOUR product—in order to give it maximum protection with economy of weight and space. There is no attempt to fit your product into "standard" sizes of shipping containers.

The SUPERSTRONG laboratory—certified by the National Safe Transit Committee—is for both design and testing. Here a competent staff of shipping engineers works with the most modern equipment in order that SUPERSTRONG containers may be properly developed and designed.

We shall be happy at any time to discuss your shipping needs, and to place our facilities at your disposal. There is no cost or obligation for this service.

RATHBORNE, HAIR and RIDGWAY BOX CO.
1440 WEST 21st PLACE • CHICAGO 8, ILLINOIS

(*Continued from page* 438)

Price of Mower Lowered 20%



This electric lawnmower weighs 45#. It is made by Rumsey Distributors, Seneca Falls, N. Y. Its motor and cutting blade are enclosed by a reinforced plastic housing; also, mower's wheel discs are also made of plastic. Retail price has been cut 20%. Reduction is attributed to changeover in housing and wheel disc material from metal to molded plastic.

COST SAVING ITEM—522

Vinyl Encased Nuts Cost 86% Less



Vinyl encased low carbon nuts and bolts are being used in corrosive chemical baths by Industrial Rayon Corp., Cleveland. The vinyl encased nuts and bolts cost approximately 14% as much as the stainless steel variety. They are used in long narrow tanks, or baths, employed in the rayon manufacturing process. Corrosive chemicals at elevated temperatures are used. In this use, a 3/64" semi-hard vinyl coating was found to be most suitable. A year's experience shows that a permanently liquid tight seal is maintained, and that the coating effectively protects the metal.

COST SAVING ITEM—523

(*Please turn to page* 442)

You're always right with AUTO-LITE Die Castings



● Many of America's leading manufacturers, producing a wide variety of products, are benefiting from Auto-Lite die cast research, experience and advancement. Such developments as high pressure casting, special alloying practices and improved quality through the "controlled metals process" make Auto-Lite the logical source of supply for precision die castings. Address inquiries to:

THE ELECTRIC AUTO-LITE COMPANY
Die Casting Division
Woodstock, Illinois
Lockland Division, Cincinnati 15, Ohio

600 So. Michigan Ave.
Chicago 5, Illinois

723 New Center Bldg.
Detroit 2, Michigan

Tune In "Suspense!" . . . CBS Radio Mons. . . . CBS Television Tues.

DIE CASTINGS • WIRE & CABLE • PLASTICS • INDUSTRIAL THERMOMETERS



SAVE STOCKROOM TIME

Requisitions to your stockroom for Pheoll Fasteners can be filled in less time. Boxes, kegs and packages are plainly marked with sizes clearly indicated for rapid identification. Pheoll's quality products handle easily, can be quickly counted or transferred to bins or assembly line trucks.

REDUCE ASSEMBLY TIME

Workmen gain time assembling with Pheoll screws, bolts, and nuts because they are accurately threaded, drive easily, seat rapidly, grip tighter—assuring stronger assemblies, easier inspection and less rejects.

IMPROVE YOUR PRODUCT APPEARANCE

The uniform quality of Pheoll Fasteners improves your product appearance. Precision slotted and finished heads, cleanly chamfered nuts, prevent marred surfaces and add to your product's sales appeal. Write for Pheoll literature and price list.

Save Costs... Increase Profits with these Pheoll Fasteners

ASK ABOUT PHEOLL Machine Screws† Machine Bolts • Special Screws and Bolts Cap Screws • Machine Screw Nuts • Wood Screws† • Thumb Screws • Brass Washers Stove Bolts†

†Furnished in slotted and Phillips Recessed Head Types

Pheoll MANUFACTURING COMPANY
5700 ROOSEVELT ROAD
CHICAGO 50, ILLINOIS
SCREWS • BOLTS • NUTS

Materials—Components

(*Continued from page* 440)

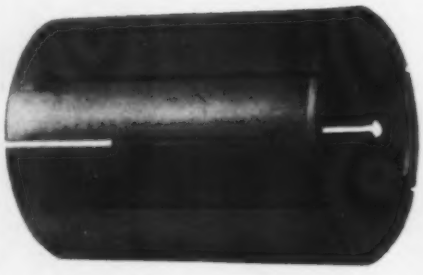
Cast-Weld Construction Saves 10%



Four of these strip repeaters, each weighing about 2½ tons, were required for a Chilean strip mill. Single steel casting would have been difficult and uneconomical. The unit was redesigned to two steel castings to be joined by welding. Redesign eliminated cores, reduced pattern cost and resulting in estimated saving of 10% over cost as a complete fabrication.

COST SAVING ITEM—524

Four-Way Savings on Expanding Collet

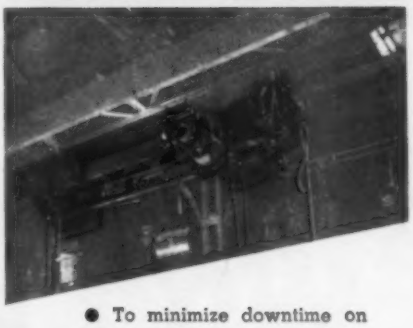


The use of special cast iron for collets in place of tool steel by the Leland Electric Co. of Canada, Ltd., resulted in the following economies: (1) Elimination of breakage—production increased 100% in six months; (2) Individual material cost saving $25.00 each; (3) Elimination of heat treatment—saving $15.00 each; (4) Machining time reduced 50 hours per unit—saving $200 each.

COST SAVING ITEM—525

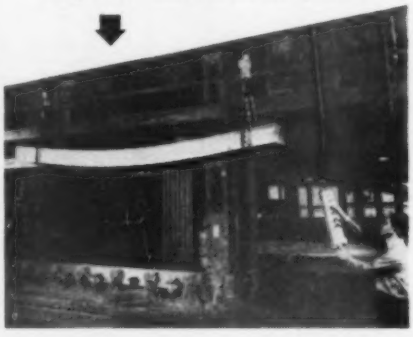
(*Please turn to page* 444)

Modern Handling System *Reduces* MACHINE DOWNTIME



● To minimize downtime on a milling machine, finished flat stock had to be lifted out of the way quickly and easily. The customer, a prominent steel company, called in a Reading Engineer. A custom-built Hoist and Crane, with an extra long lift and push button control of *all* motions, was engineered and installed. Now handling of finished stock is no longer a "time-waster."

This method of engineering special handling systems, *at no extra engineering cost*, is standard practice with Reading. For full details on how you can use it to reduce handling costs and modernize operations, call in a Reading Engineer. There is no obligation.



READING CRANE & HOIST CORPORATION
2107 ADAMS ST., READING, PA.
Chain Hoists • Electric Hoists
Overhead Traveling Cranes

READING HOISTS



Better looking, better performing

The mirror-like finish and exact gauge of McLouth Stainless Steel gives you better production performance on every job.

McLouth Stainless Steel is manufactured in a wide range of grades and finishes and the exact chemical composition of the steel is determined for every order. It has a high resistance to corrosion, heat and wear to give your products better appearance and longer life.

Ask for a McLouth Service Engineer to analyze your stainless requirements. When the product you make today, or the product you plan for the future calls for stainless, *make it with McLouth Stainless Steel.*



McLOUTH STEEL CORPORATION

DETROIT AND TRENTON, MICHIGAN

HOT AND COLD ROLLED STAINLESS AND CARBON SHEET AND STRIP STEEL



How Many Water Coolers Are Enough?

G-E Work Center Plan for Water Cooler Placement offers a new formula for quick, easy check of your own water facilities

This plan brings new information on the selection and placement of water coolers. Based on a recent General Electric study of efficiency in drinking water layouts, it tells you how to locate water coolers to cut wasted man-hours and save payroll dollars year after year.

Whether you are planning new construction or merely wish to analyze your present facilities, the G-E Work Center Plan gives you the answer. Send the coupon for your copy of the free booklet which will help you determine exactly how many water coolers are enough for *you*.



FITS ALMOST ANYWHERE—All models take less space than an ordinary office chair.



ANGLE-STREAM, NON-SQUIRT BUBBLER—Avoids water dripping back. Slotted nozzle.



DIAL THE WATER TEMPERATURE—Control knob easily reached, concealed against tampering.

You can put your confidence in—

GENERAL ELECTRIC

FREE! Illustrated booklet giving savings table, 5-step method, and typical floor plan.



GENERAL ELECTRIC COMPANY, SECTION P-4
AIR CONDITIONING DIVISION, BLOOMFIELD, NEW JERSEY

I am interested in learning more about the G-E Work Center Plan.

NAME.....

COMPANY.....

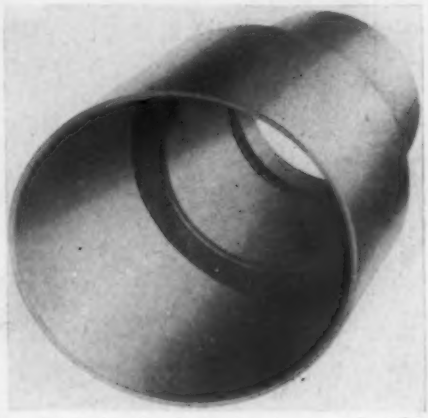
ADDRESS.....

CITY.....ZONE.....STATE.....

Materials—Components

(*Continued from page* 442)

"Welded" Plastic Makes Production Practical



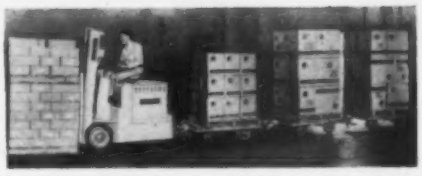
This laminated plastic part is 19" long with two concentric diameters of 13½" and 9½" connected by a flat ring. Only a few such parts were required. Mold costs would be prohibitive. It was made by taking two laminated thermosetting plastic tubes of required diameters and wall thicknesses, then cutting ring from another sheet to fit the O.D. of smaller tube and the I.D. of the larger. These three parts were then "welded" together into a strong, low cost part.

COST SAVING ITEM—526

Materials Handling

(*Continued from page* 184)

Fork Truck Operation Efficiency Improved 200%



The addition of two three-car trailer trains to the fork truck-pallet operation at the Barrington, Ill. plant of Jewel Tea Co., Inc., has increased the efficiency of the operation in movement of material between bulk storage and order assembly areas by an estimated 200%. As many as seven pallet loads are now hauled over the 600-ft. distances between these points on each trip. Truck carries one or two pallet loads on its forks while each of the small castor-wheel trailers carries a single or a double load.

COST SAVING ITEM—527

(*Please turn to page* 448)

Read the facts about

AIRCO's NEW NO. 20 RADIAGRAPH



Up-to-the-minute in design, the No. 20 Radiagraph is Airco's newest service-proven portable gas cutting machine.

. . . So you'll know about the first gas-cutting machine designed to carry Aircomatic®, Heliwelding, Flame Hardening, and other *fabrication* equipment . . .

. . . So you'll be among the first to know how the No. 20 Radiagraph cuts circles and arcs, any length straight lines, simultaneous parallel lines — with single or double bevels, and irregular shapes.

. . . So you'll know how this 57-lb. one-man portable can be put to work for you, we've written up all the detailed information you need in a quick-reading, 8-page folder. To get your copy of the No. 20 Radiagraph catalog, please fill in the attached coupon and mail it to us today, or write us on your business letterhead.

AIRCO®

AIR REDUCTION

AIR REDUCTION SALES COMPANY • AIR REDUCTION MAGNOLIA COMPANY
AIR REDUCTION PACIFIC COMPANY
REPRESENTED INTERNATIONALLY BY AIRCO COMPANY INTERNATIONAL
Divisions of Air Reduction Company, Incorporated
Dealers and Offices in Principal Cities

AT THE FRONTIERS OF PROGRESS YOU'LL FIND

AN AIR REDUCTION PRODUCT

Air Reduction Sales Company
A Division of Air Reduction Company, Inc.
Advertising Department
60 East 42nd Street
New York 17, N. Y.

Gentlemen:

Send me the No. 20 Radiagraph catalog today.

Name_____ **Title**_____

Company_____

Address_____

City_____ **Zone**_____ **State**_____



Stimpson Metal Articles

We make all kinds of metal articles — Rivets, Eyelets, Terminals, Washers, Snap Fasteners, Stampings, Screw Machine Parts, etc.

Write us today . . . . Let us quote on the metal articles you use. Our prices will interest you.

Our General Catalog illustrates over 1,000 metal articles—send for it today.

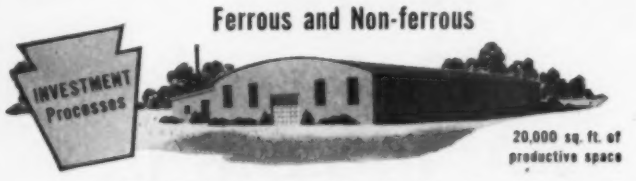
EDWIN B. STIMPSON COMPANY

451 PARK AVENUE
BROOKLYN 5, N.Y.

for precision castings see PENNSYLVANIA first!

Working with your own design engineers, our specialists can help you with critical wave-guide castings, non-machinable alloys, and alloys for severe service conditions. Our techniques and plant are ultra-modern and are geared for high-speed production at low cost. How can we help you? Just tell us your problem—we'll do the rest.

Ferrous and Non-ferrous



PENNSYLVANIA
PRECISION CASTING CO. P.O. Box 628, NORRISTOWN, PA.

Time Savings UP TO 50% IN ABRASIVE FINISHING!



You know the cleaning, cushioning and polishing advantages of rubber, the finishing actions of abrasives. Use the advantages of both in Brightboy—for working lightweight and semi-precious metals, plastics, laminated materials, wood and glass. *Combine burring, finishing, cleaning and polishing into one time saving operation!*

BRIGHTBOY SAVES PRODUCTION AND MAINTENANCE TIME

Bridges the gap between the rough grind and the buff; takes up where coarse abrasives leave off; works to close tolerances; can be shaped to contour. Produces a wide variety of conventional and special finishes and patterns; frequently the final polish. Requires no before-use preparation or dressing; no skilled labor to handle it.

A FEW OF MANY GENERAL USES

Removing light digs, tool and heat marks. Cleaning welded and soldered joints. Finishing dies and molds. Burring stampings, castings, machined parts. Maintaining tools, production and plant equipment.

Ask your dealer for the informative Brightboy Catalog Manual outlining uses and adaptations. Write the Brightboy Service Department on any problem where finishing is involved.

BRIGHTBOY INDUSTRIAL DIVISION
Weldon Roberts Rubber Co.
6th Ave. & No. 13th Street
Newark 7, N. J.

WELDON ROBERTS
Brightboy
RUBBER CUSHIONED ABRASIVES

America's Pioneer Manufacturer of Rubber-Bonded Abrasives

if you're casting around for special steels...



Try Crucible Warehouse service. You're sure to find the special steel you're trying to land. And our stocks of Rex High Speed tool steels are *immediately* available from the Crucible Warehouse nearest you.

Then too, you can get nearly all of our more than 400 specialty steels from your Crucible warehouse.

When you're up against it for special purpose steels, try Crucible first. Crucible warehouses are strategically-located across the country to give you fast, dependable service.

Stocks maintained of:
Rex High Speed Steel . . . ALL grades of Tool Steel (including Die Casting and Plastic Die Steel, Drill Rod, Tool Bits and Hollow Drill Steel) . . . Stainless Steel (Sheets, Bars, Wire, Billets, Electrodes) . . . AISI Alloy, Max-el Machinery, Onyx Spring and Special Purpose Steels.

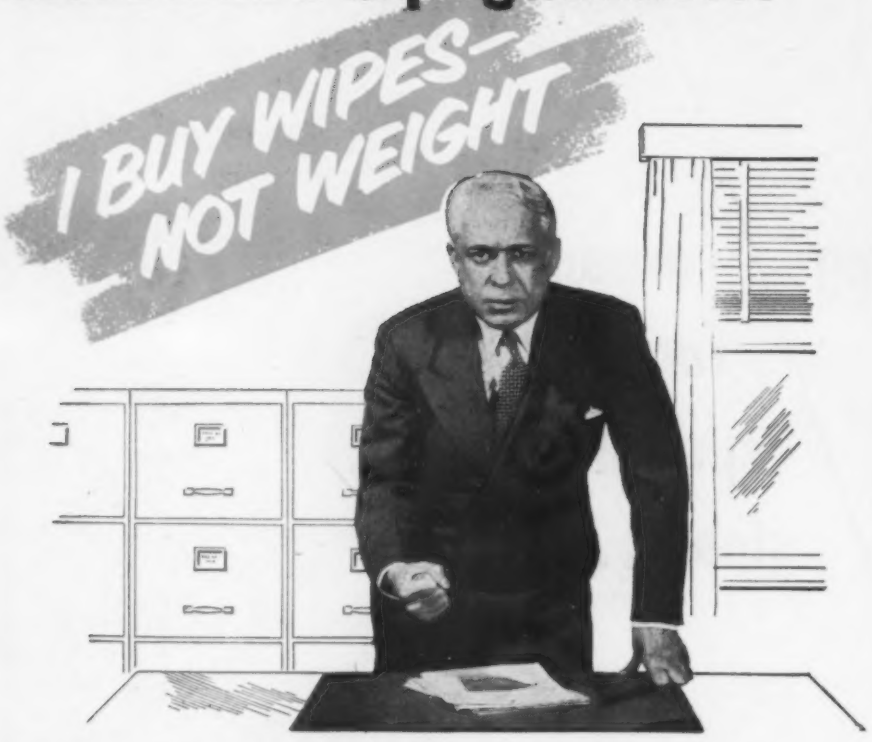
CRUCIBLE first name in special purpose steels

52 *years of* Fine *steelmaking* **WAREHOUSE SERVICE**

CRUCIBLE STEEL COMPANY OF AMERICA, GENERAL SALES OFFICES, OLIVER BUILDING, PITTSBURGH, PA.

Branch Offices and Warehouses: ATLANTA • BALTIMORE • BOSTON • BUFFALO • CHARLOTTE • CHICAGO • CINCINNATI • CLEVELAND DENVER • DETROIT • HOUSTON • INDIANAPOLIS • LOS ANGELES • MILWAUKEE • NEWARK • NEW HAVEN • NEW YORK • PHILADELPHIA • PITTSBURGH PROVIDENCE • ROCKFORD • SAN FRANCISCO • SEATTLE • SPRINGFIELD, MASS. • ST. LOUIS • ST. PAUL • SYRACUSE • TORONTO, ONT. • WASHINGTON, D. C.

with KEX wiping towels...



Because Every Square Inch is Usable—and KEX Industrial Wiping Towel Rental Service...

- Is more economical
- Supplies towels that are safe to use
- Simplifies handling
- Saves man hours
- Better equips our men
- Relieves me of shopping around
- Is a national service I can depend on
- Is available to *all* my plants



For complete information see your Classified Telephone Directory for nearest Kex distributor, or write Kex National Service, 295 Fifth Avenue, New York 16, N. Y.

"KEX" NATIONAL SERVICE

REG. U.S. PAT. OFF.

"KEX" REG. U.S. PAT. OFF. NATIONAL SERVICE A CALUMET MILLS PRODUCT INDUSTRIAL WIPING CLOTHS

It isn't Kex unless it's imprinted with the Kex name

(*Continued from page* 444)

Load 48' long, 7' High, 3' Wide



Photo shows new material handling unit used at Kelley Air Force Base in San Antonio, Texas, which with one operator replaces two fork lift trucks, a tractor, a flat-bed trailer, and four to five men. Here the machine is moving a crated wing section of a B-36 plane. This load measured about 48′ long, 7′ high and 3′ wide, and weighed approximately 5000 pounds. Delivery distance was 3/10 mile, and complete operation required but 10 minutes time. Former method took three to four times longer, several pieces of equipment and operators for each.

COST SAVING ITEM—528

Tube System for Handling Small Parts



The Burroughs Adding Machine Co., Detroit, uses over 70,000 parts to assemble its business machines. Delivery of parts from main stockroom to assembly departments is big and important job. When parts are required, requisition is sent to main stockroom by the pneumatic tube system. Parts are immediately sent to using department via the tube system. In some instances delivery time of parts has been cut from one hour to five minutes by use of this system. Delays in production are reduced to a minimum.

COST SAVING ITEM—529

(*Please turn to page* 450)



FROM THE SMALLEST *TO THE* LARGEST—

Yes, anything you can want in a pressure gauge is at your beck and call in the great line of instruments bearing the most respected name in gauges...MARSH!

Not just any size, but any duty, any case style, any finish, any dial graduations, any mounting. So complete is the line, that gauges which are "special" to other manufacturers, are often standard to Marsh—an important reason for the plus value you get in Marsh instruments.

You may merely need a gauge for ordinary service. Or you may need a gauge that will stand up under tough conditions such as extreme pressure, extreme temperature, corrosion, vibration, pulsation. But whatever the service you have only to select the Marsh Gauge recommended for the specific condition to find the final answer to your instrument problem.

Ask for catalog **covering Marsh products which include: A full line and range of gauges in pressure, compound, altitude, hydraulic, sprinkler, ammonia, ounce-graduated retard, test, and diaphragm types. Dial thermometers in rigid stem and remote reading types. A broad line of steam heating and refrigeration specialties including the Electrimatic line of refrigeration water regulators and solenoid valves.**

MARSH INSTRUMENT COMPANY

Sales affiliate of JAS. P. MARSH CORPORATION, **Dept. G., Skokie, Ill.**

Export Dept.: 155 E. 44th St., New York



Marsh alone has the RECALIBRATOR **—quickest and best way to correct a gauge or dial thermometer that has been knocked out of adjustment.**

MARSH GAUGES

HOWE Scales



JUST OFF THE PRESS

Let Us Send You This New Condensed Catalog

The *NEW* Howe Scale Condensed Catalog showing a complete line of industrial scales and hand trucks is yours for the asking. Includes data on the new Howe Weightograph and the new Howe Tape-Drive Dial Scale line for improved weighing operations. Send for your copy today.

The HOWE SCALE Co.
RUTLAND, VERMONT

Dept. P5, Rutland, Vermont

Please send me:
HOWE CONDENSED SCALE CATALOG NO. 11 ☐
HOWE HAND TRUCK CATALOG NO. 15-B ☐

Name _____
Title _____
Company _____
Address _____
City _____ State _____

Materials Handling

(*Continued from page* 448)

Attachment Saves Paper Mill 24 Manhours Daily



Use of revolving head attachment on fork truck that hauls pulp stock is saving 24 manhours daily at Hollingsworth & Vose Co., West Groton, Mass. Pulp is transferred from rotary boilers to beaters 200 to 400 feet away. Before installation of fork truck, the mill used two men with hand trucks for the transfer of the pulp stock, shoveling the pulp into the beaters by hand. Fork truck now does the whole job. The revolving head attachment makes it easy for the truck operator to dump load with a hitch. Saving, eight manhours per shift.

COST SAVING ITEM—530

(*Please turn to page* 452)

HOBBS Famous Name COTTER PINS



LOXIT
The extended prong full round cotter pin in diameters 1/16" to 3/8" and lengths 1/2" to 4".

HOBLOK
The famous "Whammit—Dammit!" machine set cotter pin. In most standard sizes.

In Steel, Stainless Steel, Monel, Brass and Aluminum. Meets all AN specifications for Cotter Pins.

HOBBS MANUFACTURING CO.
EST. 1882 10 Salisbury St., Worcester 5, Mass.
Manufacturers of:
Tangle-Proof, the precision made Lock Washer



MASTER OF MOISTURE

Developed to withstand constant subjection to widely varying temperatures, water, steam and pressure, the Aerol Seal Wheel has completely proved itself in the plants of leading food processors throughout the country. Savings in maintenance costs alone spell extra profits for cost wise buyers.

Special design and construction of the Aerol Seal Wheel prevents foreign matter from entering the hub, and retains factory lubrication for life! Best quality live rubber tread is so compounded that it is literally impervious to the action of animal fat or brine.

WRITE TODAY for catalog. Address inquiries to Aerol Co., Inc., 2424 San Fernando Road, Los Angeles 65, California—Dept. P3

WATER TIGHT—AIR TIGHT
Neoprene O-rings are housed so that there is a positive air and water tight seal . . . Condensation within the hub prevented; bearings permanently adjusted. Foreign matter is excluded.

FACTORY LUBRICATED FOR LIFE!
Lubriko-Master lubricant (M-21) has unusual film strength, extremely high melting point and low cold test. Will not corrode, cake, gum or separate.

FOR SAVINGS CONCENTRATE ON aerol

AEROL CO., INC.
2424 SAN FERNANDO ROAD
LOS ANGELES 65, CALIFORNIA

NO WHEEL ROLLS LIKE AN AEROL

FOR LONGER POUNDS OF SPRING STEEL . . . . *Try Sandvik*

SANDVIK ROLLS STRIP CLOSER TO EXACT SIZE . . . GIVES YOU MORE FEET AND MORE PARTS PER POUND

Sandvik precision-rolling not only produces strip within specified tolerances, but consistently brings gauge closer to the exact size. That means more parts for your spring steel dollar.

Sandvik's consistent uniform physical properties, coil after coil, lot to lot assure continuous, high quality production at a lower cost per part.

Sandvik Swedish specialty cold-rolled, high carbon strip steel is available:

- **Precision-rolled in thicknesses from .001"**
- **In straight carbon and alloy grades**
- **In special analyses for specific applications**
- **In more than 800 stock sizes**
- **Annealed, unannealed or hardened and tempered**
- **Polished bright, yellow or blue**
- **With square, round or dressed edges**

Phone, wire or write your nearest Sandvik office for further information or technical assistance.

SOME SANDVIK SWEDISH SPECIALTY STRIP STEELS

Steel for Textile Machine Parts • Band Saw Steels; Metal Band, Wood Band and Butcher Band • Camera Shutter Steel • Clock and Watch Spring Steels • Compressor Valve Steel • Doctor Blade Steel • Feeler Gauge Steel • Knife Steels • Razor Blade Steel • Reed Steels • Shock Absorber Steel • Sinker Steel • Spring Steels • Trowel Steel • Vibrator Reed Steel, etc.



FREE!

SANDVIK CATALOG DESCRIBES 785 SPRING STEEL SIZES

If you buy or specify spring steel you should have this catalog. It gives thickness, width, hardness, types of edges, and weight in pounds per hundred feet. Also useful conversion tables. Write for your free copy.

SANDVIK STEEL, INC.

111 EIGHTH AVE., NEW YORK 11, N. Y., WAtkins 9-7180
230 N. Michigan Ave., Chicago 1, Ill., FRanklin 2-5638
1736 Columbus Rd., Cleveland 13, Ohio, CHerry 1-2303
SANDVIK CANADIAN LTD., P. O. Box 40, Station O, Montreal 9, P. Q.

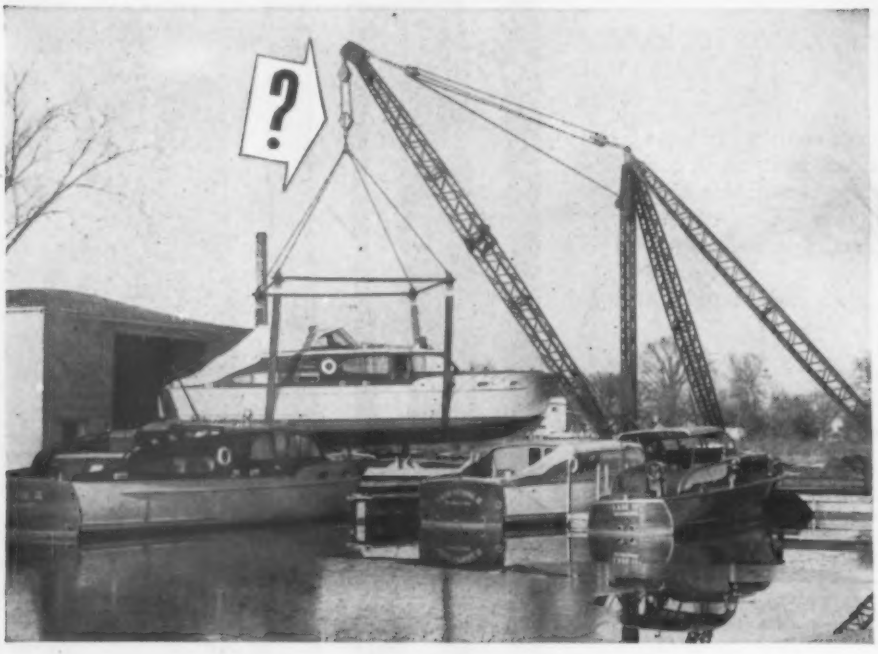
SANDSTEEL SPRING DIVISION • New York, N. Y. • Industrial Springs
SANDVIK SAW & TOOL DIVISION • New York, N. Y. • Saws and Tools

Sandvik Quality Steels



55-79

What's the capacity of this block?

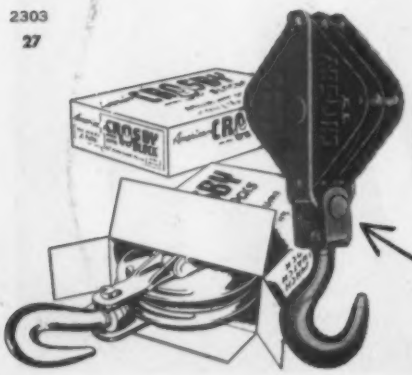


If you don't know.. don't use it!

An overloaded block can be as expensive as it is dangerous. For example, just imagine dropping a cabin cruiser!

To help prevent such catastrophes, American CROSBY Wire Rope Blocks are *Load-Rated*. The safe working capacity of the block is embossed in the side plate. American CROSBY Blocks are built with the same rugged quality found in giant American crane blocks. Individually packaged, they are delivered in clean, perfect operating condition. Sold by distributors and supply houses everywhere, and made by the makers of genuine Crosby Clips, the famous wire rope fasteners . . . AMERICAN HOIST & DERRICK COMPANY, St. Paul 1, Minnesota.

2303
27



American CROSBY Load-Rated! WIRE ROPE BLOCKS

Materials Handling

(*Continued from page 450*)

Keg Handling Time Reduced 75%



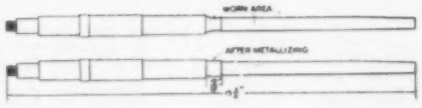
A 4000-lb. capacity fork truck equipped with a special ram-type suspension arm has reduced keg handling time by more than 75% at the Philadelphia plant of the Whitehead Metal Products Co. By permitting multiple stacking of kegs, the attachment enables the company to more fully utilize its in-plant air rights. Formerly, 500 to 800 lb. kegs of electrolytic nickel were handled by hand truck. Now they are picked up four at a time and stacked four and five high. The use of the truck frees one man for other work.

COST SAVING ITEM—531

Maintenance

(*Continued from page 226*)

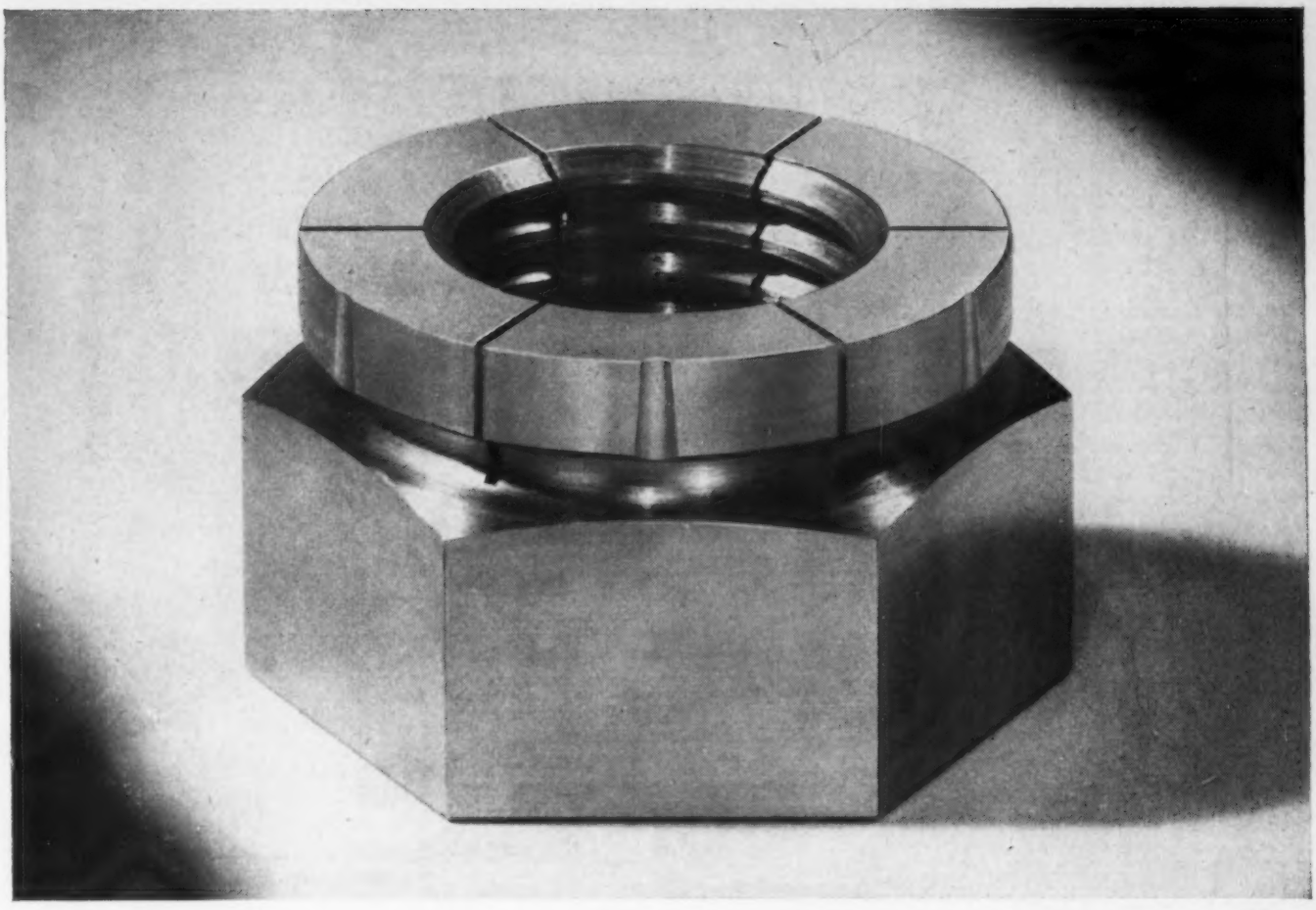
Save $43,000 Annually in Spindle Repairs



Report from textile mill which uses 21,536 rayon spinning machine motors, describes spindle repair application which resulted in superior service and important savings. Each motor has a 15″ spindle operating under severe acid conditions in heavy duty service. Sleeving was attempted without success since turning and grinding weakened the spindles, often causing splitting; further, sleeves would not stay tight. Company states that metallizing with steel makes spindles as good as new. With more than 5,000 spindles being metallized each year, savings over replacements are estimated at $45,000 per annum.

COST SAVING ITEM—532

(*Please turn to page 454*)



ON COMMERCIAL CARRIERS
FLEXLOC NUTS WON'T WORK LOOSE





SOUTHERN COACH LINES, INC., Chattanooga, Tenn., uses FLEXLOC Locknuts to combat vibration on the motor housings, differentials, drive shafts and shock springs of its bus fleets.



PHILADELPHIA TRANSPORTATION COMPANY, Philadelphia, Pa., has installed FLEXLOC Self-Locking Nuts on the rear axle flanges of its buses. These locknuts eliminate sheared studs, reduce maintenance, save time and money.

Write for descriptive literature and samples. Although the Government has taken almost all of our output, we'll be glad to send as many as you need to test on your equipment. STANDARD PRESSED STEEL CO., Jenkintown 31, Pennsylvania.

FLEXLOC
LOCKNUT DIVISION

SPS
JENKINTOWN PENNSYLVANIA



Now — in one handy package — *an assortment of electrodes to meet every emergency!*

NEW P&H Maintenance Pack

At your fingertips — an assortment of five different kinds of rods for repair and maintenance welding. Packaged to stay dry — clearly identified to make selection easy.

With the P&H Maintenance Pack, you no longer have to buy seldom-used rods in quantities larger than you need. Instead, in one convenient package, you can keep some of each type on hand — economically!

And you're equipped to do all kinds of jobs — with fast, easy, sound welds. Just look at what the versatile P&H Maintenance Pack gives you:

1. **5 lbs. each AC-3, 1/8", 5/32", 3/16"** — For all position welding of mild steels and sheet metal. Can be used with AC or DC welders.
2. **5 lbs. AC-1, 5/32"** — For mild steels. The most universal electrode yet developed. Unusually easy to handle in any position, with good penetration. AC or DC.
3. **5 lbs. 70LA2, 5/32"** — For welding high-carbon, alloy, high-sulfur, free-machining, cold-rolled, and other hard-to-weld steels. Ideal for steel casting repairs. AC or DC.
4. **1 lb. Harstain, 1/8"** — For spring steels and stainless steels of all kinds. AC or DC.
5. **1 lb. Nicast, 1/8"** — For machinable welds on cast iron. Nicast welds are strong and non-porous.

$13.50 COMPLETE

Let the P&H Maintenance Pack save time, trouble, and money for you. Order from your P&H representative or local distributor. Mail coupon for name of one nearest you, and for further information.

P&H WELDING DIVISION
HARNISCHFEGER CORPORATION
4513 WEST NATIONAL AVENUE
MILWAUKEE 14, WISCONSIN

POWER SHOVELS • CRAWLER AND TRUCK CRANES • OVERHEAD CRANES • HOISTS • ARC WELDERS AND ELECTRODES • SOIL STABILIZERS • DIESEL ENGINES • PRE-FABRICATED HOMES.

Tear out coupon and mail today!

HARNISCHFEGER CORPORATION
4577 W. National Ave., Milwaukee 14, Wis.
Send me information on new P&H Maintenance Pack and name of nearest dealer.

Name.....
Position.....
Company.....
Address.....
City.....(.....) State.....

3429

(*Continued from page* 452)

60% Improvement in Accident Record



Standardization on a single line of safety equipment, together with program of personnel instruction, is credited with a 60% improvement in accident record of the Chattanooga Division of Combustion Engineering-Superheater, Inc.

COST SAVING ITEM—533

78% Reduction in Hand Injuries



Production was penalized by frequent hand injuries from cuts, heat and acid burns in company employing 1000 men to shear, form and dip-coat sheet steel products, Canvas and neoprene gloves quickly cut or tore, costing on many operations more than 10¢ per man-hour for replacement. Job tests resulted in the adoption of heavy reinforced neoprene coated gloves for work with hot galvanized metal and acid solutions, and gloves with tough natural rubber coated palms and thumbs for handling dry sheets. Following the changeover, there was a reduction of 78% in hand injuries. The new gloves also wore 3 to 5 times longer, at average cost saving of 6¢ per manhour.

COST SAVING ITEM—534

(*Please turn to page* 456)

Here's the Big Difference!





TAPER-LOCK

-The Sheave that always runs true!

The Taper-Lock bushing seats evenly along the entire length of the hub. It is self-seating. There is no collar—no protruding part—no flange to prevent uniform compression.

With full contact, Taper-Lock sheaves run true. Made of finest grade of close-grained semi-steel, cast in the Dodge foundry. Precision grooves have identical pitch diameters so that every belt can pull its share of the load.

Sheave and bushing mount as a unit—easy to align on the shaft. Grips the shaft like a shrunk-on fit. Flush hub means safety.

THERE IS ONLY ONE TAPER-LOCK (a patented product of Dodge). Available from distributors' stocks in a complete range of sizes in A-B combination, B, C and D grooves. Also ask your distributors for Dodge Sealed-Life V-Belts. WRITE for complete data.

DODGE MANUFACTURING CORPORATION, 1300 Union St., Mishawaka, Indiana



DODGE

of Mishawaka, Ind.



CALL THE TRANSMISSIONEER

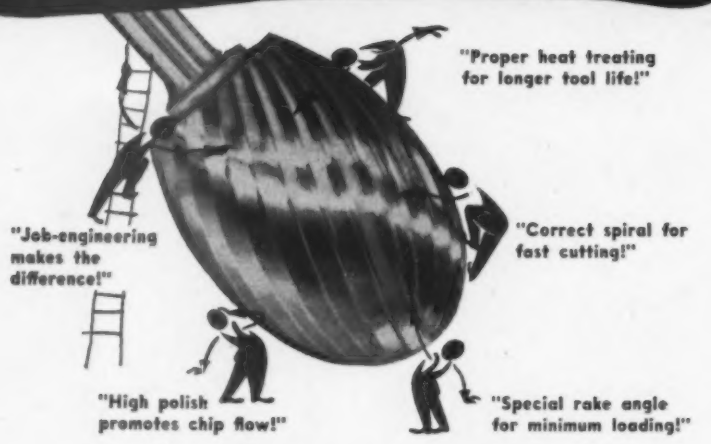
your local Dodge Distributor. Factory trained by Dodge, he can give you valuable assistance on new, cost-saving methods. Look for his name under "Power Transmission Machinery" in your classified phone book.

NAME PLATES

FOR YOUR NAME PLATE REQUIREMENTS, WRITE OUR SUBSIDIARY, CHICAGO THRIFT-ETCHING CORPORATION, 1555 SHEFFIELD AVENUE, CHICAGO 22, ILLINOIS

Ford high speed rotary tools

CUT ALUMINUM AND MAGNESIUM faster and without loading

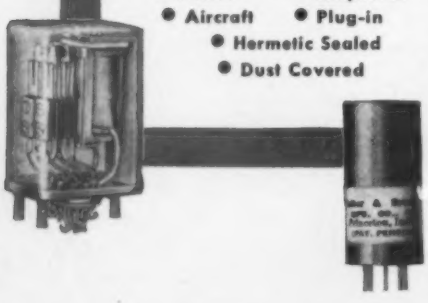


Write for details and prices!

M. A. FORD MFG. CO. INC.
738 West River Street, Davenport, Iowa

WANTED:
MILITARY and INDUSTRIAL
RELAY PROBLEMS

APPLICATIONS UNLIMITED:
- Electronic
- Mobile
- Sensitive
- Miniature
- Power
- Telephone
- Aircraft
- Plug-in
- Hermetic Sealed
- Dust Covered



Let Potter & Brumfield work out the specifications for your "most exacting" military and industrial relay requirements

Twenty years of highly specialized technical knowledge acquired in the design and production of relays and similar electro-mechanical assemblies enable P & B to understand today's relay problems—come up with the quickest, most practical, *and most economical* solution.

Complete research, development, type testing, and manufacturing facilities are at your service. Models and pilot runs can be completed quickly and at very reasonable cost. Production capacity—10,000 relays per day. Send specifications for samples, recommendations and quotations. Catalog available on request.

P & B standard relays are available at your electronic parts distributor

Potter & Brumfield
PRINCETON, INDIANA
Export: 13 E. 40th St., N. Y., N. Y.
Sales Offices in Principal Cities
In Canada:
2273 Danforth Ave., Toronto

Maintenance

(*Continued from page* 454)

Color Code Decreases Accidents 25%



"Safety in Colors" was theme of plant painting program at plant of King Fifth Wheel Co., Philadelphia 33, Pa. In workshop all walls are in two tone green, upper half at eye level being a soft pastel shade, the lower a forest green. Ceilings are white. Ground equipment was sprayed a dark green with control handles and switches a bright red. Overhead cranes and hoists are yellow, and all safety switch boxes brilliant orange. Accident rate records show that accidents have decreased approximately 25% in first six months following completion of the job. New fluorescent light was also installed. The new color scheme is felt to have a general favorable effect on operations.

COST SAVING ITEM—535

Silicone Oil Solves Lubrication Problem



Problem of cleaning and relubricating forced air fan for oil fired furnace was solved by use of silicone

(*Please turn to page* 458)



You Always Know Where You Are . . . with BRASS

You can always chart a true course in production and marketing, when you work with Brass. For its "working behavior" on any job is well-known, always reliable, never erratic. Yes, Brass is easy to get along with, whether you're fabricator or user. And you'll never be left high and dry . . . like a major manufacturer who was forced to try a substitute material during the recent copper "shortage" . . . and who wound up paying more than $10,000,000 in free replacement parts to angry customers.

No, it shouldn't be long before there's a *shortage of shortages*. And so, in the words of the world's largest copper producer (a producer of many other metals as well): "On the basis of the facts, there is no need to consider long-range substitution of other materials for the red metal." For, when all is said and done, *there are* no *substitutes for Brass*. And if you are a user of Brass mill products, your inquiries are invited *now*.

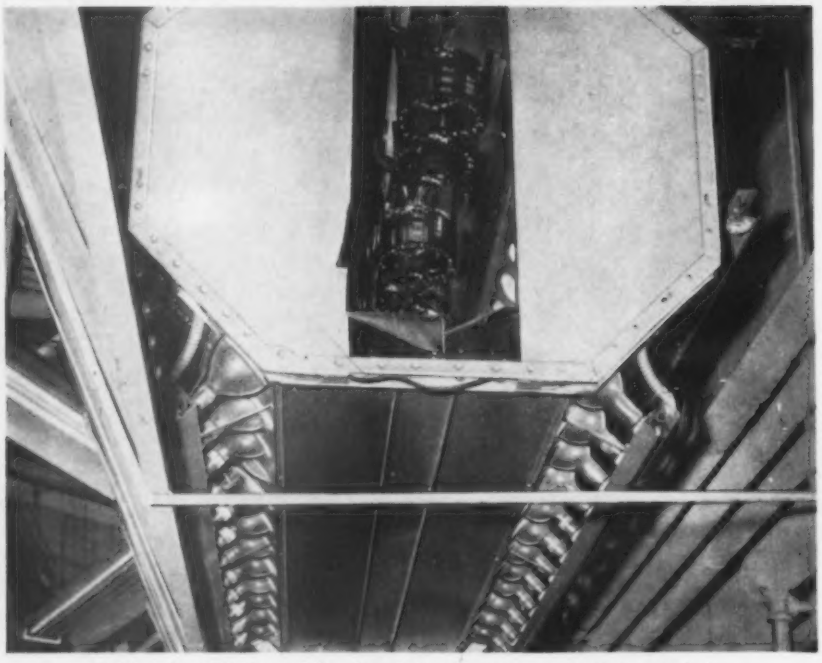
• • •

The BRISTOL BRASS CORPORATION, makers of Brass since 1850 in Bristol, Conn. Offices or warehouses in Boston, Chicago, Cleveland, Dayton, Detroit, Los Angeles, Milwaukee, New York, Philadelphia, Pittsburgh, Providence, Rochester.

"*Bristol-Fashion*" means Brass at its Best

EVERY MONTH, MORE AND MORE PLANTS ADOPT

AMPLEX INFRA-RED LAMPS



Ceiling installation of Amplex Infra-Red Lamps in Triangle baking oven at Kingston-Conley Division, The Hoover Company, Cambridge, Ohio.

FASTER BAKING TIME at lower cost! That's the outstanding reason why leading manufacturers like The Hoover Company, makers of vacuum cleaners and other electrical appliances, are adopting Amplex Industrial Infra-Red Lamps. These finest quality lamps are designed and built for an average laboratory life of over 5,000 hours. They require absolutely no warm-up time. Service records show that they've reduced baking time drastically in one installation after another.

Amplex Industrial Infra-Red Lamps are made in the most complete line ever marketed. There's a choice of Ruby, Clear, Reflector Ruby and Inside-Silvered Reflector types for top efficiency on every job. "Moisture-Proof" *hard glass* infra-red lamps are available to eliminate breakage due to moisture condensation and splashing.

As the first move toward improved performance and real savings, get the full story together with samples of Amplex Infra-Red Lamps. Just write **Amplex Corporation, Dept. U-5, 111 Water St., Brooklyn 1, N. Y.**

AMPLEX

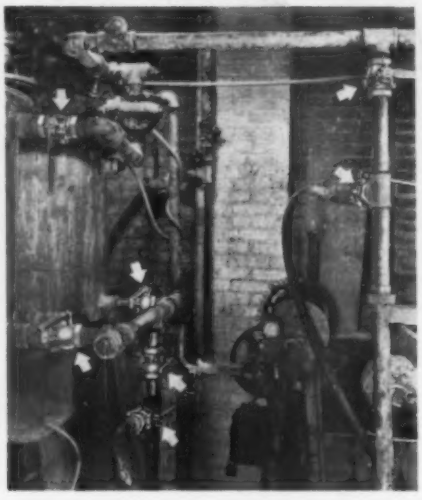
Sealed-Beam Reflector Lamps, Colorbeam Lamps, Spotlites and Floodlites, Industrial Infra-Red Heat Lamps, Vibration and Rough Service Lamps, Street Lighting Lamps, Traffic Signal Lamps, Incandescent Lamps, Fluorescent Tubes, Display Accessories.

(*Continued from page* 456)

oil, and eliminating relubrication. Previously the petroleum oil used for lubricating the motor's porous bronze bearings thickened, and fan refused to run at normal speed. In 1945 a unit lubricated with silicone oil was installed. This unit has been in operation six years without replacement, relubrication or cleaning. Bearing wear is said to be negligible. The silicone oil has not thickened.

COST SAVING ITEM—536

Valve Maintenance Nil



Ball valves indicated in this picture are installed on a slip machine and lines in plant of Iroquois China Co., Solvay, N. Y. They are operated 40 times daily and handle a mixture of clay and water—a "slip" mixture which is highly abrasive. During 14 months' service valves have never required attention. Turbulence and accumulation of "slip" in bonnet have been eliminated.

COST SAVING ITEM—537

Refined Lube Oil Pays Dividends

Three utility plants in New England have by experience demonstrated the savings made possible with lube oil refining equipment. Each has installed a semi-automatic refiner. They refine either diesel lube oil, hydro generator bearing oil, transformer oil, or all three. One station reports refining cost of 7¢ per gal., a saving of 57¢. Another refines lube oil at cost of 4¢ per gal. Another makes weekly cash saving of $3.77 in reduced fuel and lube oil expense, or approximately

(*Please turn to page* 460)



Photo courtesy of Woodall Industries, Inc.

A stitch in metal saves *plenty!*

STITCHING with wire is a relatively new way of joining metal to metal, or metal to almost any other material. Since speeds up to 100 stitches a minute are possible . . . and since wire is economical . . . there are tremendous time-and-cost savings compared with other methods of fabrication.

Success of the whole idea hinges largely on special wire. For the wire must be *stiff* to penetrate metal. It has to be *strong*, up to 330,000 psi in tensile strength, to provide a lasting grip. Still it must be *ductile* to take tight 180° bends without cracking or breaking.

Here, at our Worcester Wire Works Division, this unusual wire is produced in several strengths, sizes and finishes to meet all metal stitching requirements perfectly! Here too, the skill and care for which Worcester Wire Works has long been known result in exceptional uniformity—a particularly great advantage for any user of machine-fed wire.

Do you have a problem involving wire? Perhaps, as in metal stitching, a new, specially developed wire is the answer. Maybe you need only some specialized engineering help on the use or fabrication of wire. In any case, Worcester Wire Works stands ready to serve you, to give you the advantage of engineering experience, special skills and techniques that have been over 30 years in the making. It's your standing invitation to out-of-the-ordinary, personalized service in wire.

NS
NATIONAL-STANDARD Company
NILES, MICHIGAN

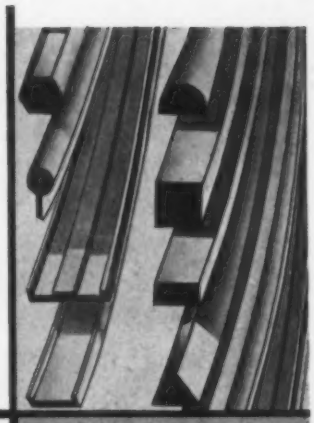
DIVISIONS OF NATIONAL-STANDARD CO.

ATHENIA STEEL	*Clifton, N. J.*	Flat, High Carbon, Cold Rolled Spring Steel
NATIONAL-STANDARD	*Niles, Mich.*	Tire Wire, Stainless, Fabricated Braids and Tape
REYNOLDS WIRE	*Dixon, Illinois*	Industrial Wire Cloth
WAGNER LITHO MACHINERY	*Jersey City, N. J.*	Metal Decorating Equipment
WORCESTER WIRE WORKS	*Worcester, Mass.*	Round and Shaped Steel Wire, Small Sizes

call South Orange 2-7600

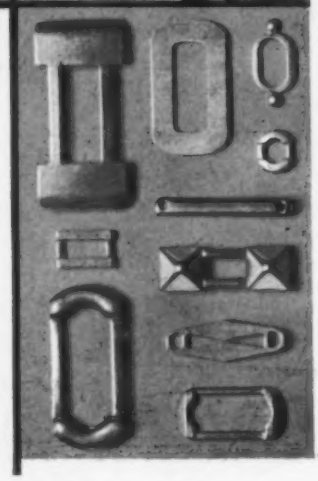
or send blueprint or sample and quantity requirement for cost comparison and delivery . . .

if your Defense Contracts call for



• shaped wire

we produce these and any other special shapes, in all ferrous and non-ferrous metals and alloys, to customers' specifications up to 3/4" wide and 3/16" thick. Tolerances: ± .0005



• stampings & piercings

any shape, any type to customers' specifications, in all ferrous and non-ferrous metals and alloys, within these dimensional limits: Over-all size — up to 1". Thickness of stock — up to 1/16". Tolerances: ± .0005

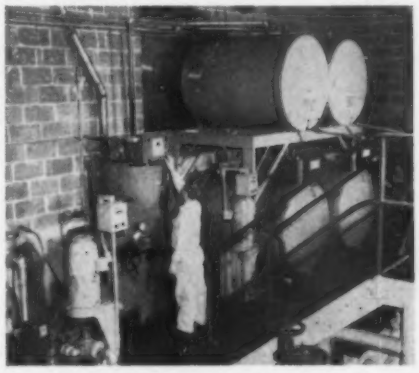
Our plant is equipped with hundreds of high-speed wire drawing and forming machines. These machines are also capable of producing the most intricate stampings and piercings to customers' specifications. Additional facilities such as an up-to-date tool shop plus complete finishing equipment — including tumbling, polishing, heat treating — assure you of on-time deliveries to meet your defense work schedules.

UNIVERSAL CHAIN COMPANY, Inc.
92 Burnett Avenue
Maplewood, New Jersey

Maintenance

(*Continued from page* 458)

$200 yearly for one engine. One engine operating without re-refiner produced only 1,972 KW hours per gal. of lube oil and 12.5 KW hours



per gal. of fuel. However, two engines used in conjunction with re-refiner developed 2310 KW and 2,474 KW hours per gallon of lube oil respectively, and 12.7 KW hours each per gallon of fuel oil over same period.

COST SAVING ITEM—538

Safety Shoe Saves Toes



If it hadn't been for this pair of safety shoes, worker at plant of the Norton Company, Worcester, Mass. would probably have lost several toes on his left foot. A heavy steel plate falling from a bench smashed the steel-capped shoe, though the worker received no foot injury. In January 1950, the company launched a drive to reduce toe accidents by making purchase of safety shoes available through the Safety Engineer's office. Shoes are now sold at cost. In 1949, ten fractures were recorded; in 1950, there were five; in 1951 only three. Of the three in 1951, two occurred to men without safety shoes. Third man probably would have had his toes badly mangled had he not been wearing safety shoes.

COST SAVING ITEM—539

(*Please turn to page* 462)



NIBROC® TOWELS

"A KNOCKOUT FOR DRYING HANDS!"

"These Nibroc towels are really a knockout for drying hands," the distributor's salesman said.

"Nibroc towels soak up water fast, yet not at the sacrifice of softness or strength. Everything you want in a towel—fast, thorough drying—pleasing softness—wet-strength—freedom from lint—is found in Nibroc in *a perfectly balanced combination.*

"That's what makes Nibroc the world's largest selling paper towel for industrial and institutional use!"

Economical, too! Because one Nibroc towel dries both hands, fewer are used. Nibroc towels go further, last longer—cost less in the long run.

A Towel for Every Need. Singlefold or multifold, white or buff.

Dispensers Require Less Servicing. Sparkling white enamel Nibroc cabinets hold up to 50% more towels—are easily mounted to wall without drilling.

Mail Coupon For FREE WASHROOM POSTERS emphasizing importance of personal cleanliness and washroom sanitation.



SPECIFY NIBROC TOWELS

They Dry Drier—Faster!

BROWN QUALITY COMPANY, Berlin, New Hampshire
CORPORATION, La Tuque, Quebec

General Sales Offices: 150 Causeway Street, Boston 14, Mass.
Dominion Square Building, Montreal, Quebec

SOLKA & CELLATE PULPS • SOLKA-FLOC • NIBROC PAPERS • NIBROC TOWELS • NIBROC KOWTOWLS • BERMICO SEWER PIPE, CONDUIT & CORES • ONCO INSOLES • CHEMICALS

BROWN COMPANY, DEPT. GN-5
150 Causeway St., Boston 14, Mass.

Please send me free washroom posters and data on Nibroc cabinets and Nibroc towels.

Name _____

Title _____

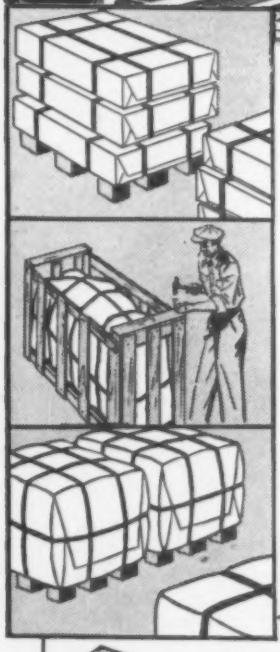
Company _____

Address _____

City _____ *Zone* _____ *State* _____

NEW PROTECTION





wrap it...ship it!
store it!... **IN GLAS-KRAFT**

GLAS-KRAFT — The smoothest, lightest, most pliable reinforced paper available — keeps your materials, products and equipment safe from weather, wear and the hazards of transit or storage. Strong and tough, it is hard to puncture and difficult to tear. It is the most waterproof reinforced paper on the market.

Ask for GLAS-KRAFT . . . *the non-deteriorating, all-purpose paper.* Use it for wrapping and packaging steels and other metals, machinery, paper, leather, textiles, chemicals, cement, wirestock, furniture, etc. Use it for wraps, covers, shrouds, tarpaulins, bag, box, case and barrel liners. Use it for unitized loading of freight cars and trailers. Use it for protecting floors or curing concrete. Use it when you want a paper to perform where others fail.

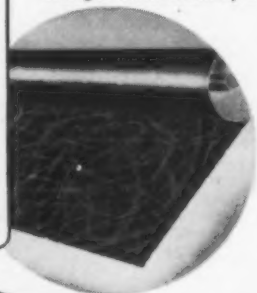


Glas-Kraft has amazing all-directional strength because it contains up to 315 feet of continuous specially-treated fibers swirled into each square foot. Fibers are waterproof bonded under heat and pressure between two plies of finest specification kraft.

FREE. Send for new Glas-Kraft Folder and Prices today. Glas-Kraft is supplied to the U. S. Government in quantity. It meets JAN-P-125 specifications for barrier wrapping material, Types E-1, E-2, E-3. It also meets Federal Specifications UU-P-147, UU-P-264-A and UU-P-271-B.

OTHER GLAS-KRAFT PRODUCTS

- SEALING TAPE for Carton Closures. Five times stronger than ordinary sealing tape. Will not cut carton. Replaces string, rope, wire and strappings.
- GLAS-TAPE (ungummed). A simple attachment on your present equipment permits you to use *ungummed* Glas-Tape with Darex adhesive. Weatherproofs the manufacturer's joint on your own cartons. Creped outer surface minimizes joint itself. Also available in *gummed* form.



BETTER INDUSTRIAL PAPER PRODUCTS BY

GLAS-KRAFT, INC.

LONSDALE, RHODE ISLAND

TRADE MARK OF GLAS-KRAFT, INC.

Maintenance

(*Continued from page* 460)

Work Gloves Save 90¢ Per Man Per Day



Manufacturer of kitchen appliances was dissatisfied with service rendered by work gloves furnished to plant men. He switched to gloves featuring twisted loop construction. Gloves proved to have high resistance to wear and cutting, and also provide good insulation against heat. They feature five-finger flexibility and are reversible,—that is, any two gloves make a pair. Cost records show that these gloves are saving the company 90¢ per man per work day.

COST SAVING ITEM—540

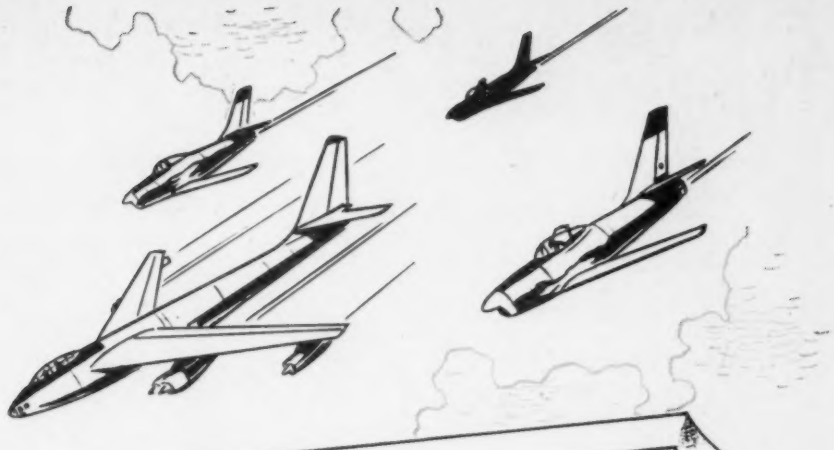
Helmet Prevents Injury



At Canadian General Electric Company's Peterborough, Ontario plant, this workman was shot-blasting a piece of equipment when sharp corner of steel broke off. It tore through a screen and shattered glass cover in the facepiece of this blast resisting helmet, but was stopped by the safety lens which, though cracked as shown in the picture, shielded him from injury.

COST SAVING ITEM—541

(*Please turn to page* 464)



THESE ARE AMERICAN

...AMERICAN Fasteners for Aircraft that make Assemblies REALLY Fly!

Long as a bomber's cruising range is the American line of fasteners for the aircraft industry . . . all standard types of close-tolerance screws and bolts of alloy steels, and A. N. fasteners of carbon steel and selected brass and aluminum... *both Phillips and slotted*...as well as rugged "Hi-Shear" rivet pins of alloy steel, and special fasteners as required...all produced precisely to Air Force-Navy aeronautical standards.

Every American Countersunk Fastener can be depended upon for uniform flushness in assembly . . . because it's been carefully checked for accuracy of countersink angle, head thickness, and concentricity. For full information on these and on other types of Aircraft Fasteners you require, send today for American's new Aircraft Catalog, just off the press.

AMERICAN SCREW COMPANY, WILLIMANTIC, CONNECTICUT

Main Office & Plant: Willimantic, Conn. Office & Plant: Norristown, Pa. Office & Warehouse: Chicago, Ill.



"HI-SHEAR" (Trade Mark Reg.) RIVET PINS | MACHINE SCREWS | STRUCTURAL SCREWS | TAPPING SCREWS | DRIVE SCREWS | WOOD SCREWS

Dear P.A. Remember the Baker's Dozen? It had 13 rolls. It was the original baker's dozen and gave customers quite a break.



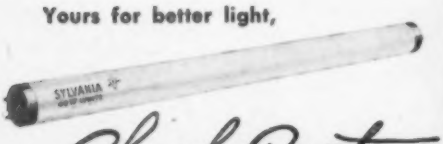
But the baker's dozen can't be compared to the extra value you get today from Sylvania Fluorescent Tubes.

Y'see these Sylvania Tubes are rated at 7500 hours.

Just try 24 Sylvania tubes and get our Certificate of Assurance from any Sylvania Distributor. Then, if after a trial installation these tubes don't out-perform any others, simply return them with the certificate and you'll get your money back. Wow!

Of course there are a number of hard-to-pronounce chemical words that tell why we *dare* make an offer like this, but they sound too much like selling talk. So, all I say is try Sylvania tubes . . . I know they'll save you money!

Yours for better light,



Chuck Burton

General Sales Manager, Lighting Division

Sylvania Electric Products Inc.
Dept. L-5405, 1740 Broadway, N. Y. 19, N. Y.

I'd like to know more about Sylvania Tubes' better performance and bigger savings. Please send me a copy of "How to get the most from your Lighting Dollars." (FL-408)

Name .....

Company .....

Address .....

City ..... *Zone* ..... *State* .....

(*Continued from page* 462)

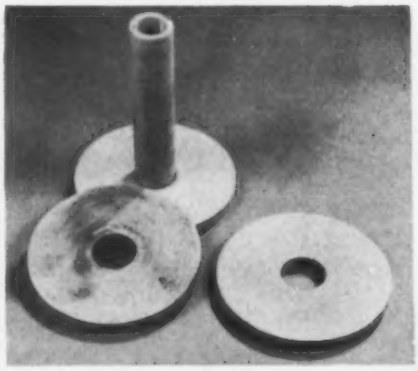
Scrap Patrol Saves $20,000 Yearly



Scrap salvage program at the Erie Plant of the General Electric Co. is paying dividends. Fork truck operator is kept busy touring shop carrying away tote boxes loaded with steel shavings at machines. Scrap pit has drains built in bottom, permitting excess oil to be drawn off and used. About nine gondola cars loaded with scrap are sent to dealers each month. Mechanization of scrap handling is estimated to save $10,000 annually in scrap handling costs. Value of cutting oils recovered from metal turnings is placed at $10,000 annually.

COST SAVING ITEM—542

New Spacers Last Months Instead of Days



Electrical maintenance men at chemical plant specified cotton-phenolic spacer disks and tubes to insulate knife-switches on a 45,000-ampere graphitizing transformer. Operating temperatures ranged from 400 to 500 deg. F., converting insulators to charred, cracked shrunken conductors in less than 30 days. Installation of new spacers held up

(*Please turn to page* 466)

5 VALUABLE CATALOGS FOR YOUR FILES...



. . . describing **Harrisburg Seamless Steel High-Pressure Cylinders.**



. . . describing **Harrisburg Seamless Steel Pipe Couplings.**



. . . describing **Harrisburg Drop-Forged Steel Pipe Flanges.**



. . . describing **Harrisburg Lite-Weight Liquefied Petroleum Gas Cylinders.**



. . . describing **Harrisburg Drop Forgings.**

Copies of any or all of the above Catalogs will be mailed on request . . . order them by product name.

99 Years in Pennsylvania's Capital

Harrisburg Steel
CORPORATION
HARRISBURG 19, PENNSYLVANIA

MEET YOUR H-F REQUIREMENTS

with

Federal's

complete line of

RG TYPE CABLES

FEDERAL RG TYPE COAXIAL CABLES

REGULAR JACKET

RG-5/U	RG-14/U	RG-23/U	RG-59/U
RG-6/U	RG-15/U	RG-24/U	RG-62/U
RG-7/U	RG-17/U	RG-29/U	RG-63/U
RG-8/U	RG-18/U	RG-34/U	RG-65/U
RG-9/U	RG-19/U	RG-35/U	RG-71/U
RG-9A/U	RG-20/U	RG-54A/U	RG-74/U
RG-10/U	RG-21/U	RG-55/U	RG-79/U
RG-11/U	RG-22/U	RG-57/U	RG-108/U
RG-12/U	RG-22A/U	RG-58/U	RG-111/U
RG-13/U	RG-22B/U	RG-58A/U	

LOW TEMPERATURE NON-CONTAMINATING JACKET

Types approved to date—

RG-5B/U	RG-11A/U	RG-22B/U	RG-62A/U
RG-6A/U	RG-12A/U	RG-58B/U	RG-63B/U
RG-8A/U	RG-13A/U	RG-58C/U	RG-65A/U
RG-9B/U	RG-21A/U	RG-59A/U	RG-79B/U
RG-10A/U			

The following types—over ½-inch diameter—are available, subject to military approval:

RG-14A/U	RG-18A/U	RG-20A/U	RG-34A/U
RG-17A/U	RG-19A/U	RG-23A/U	RG-74A/U

Federal Telephone and Radio Corporation
Selenium-Intelin Division—Clifton, N. J.

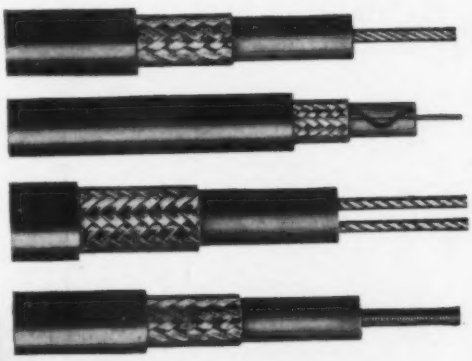
SAVE THIS LIST

Including the Federal-developed

LOW TEMPERATURE NON-CONTAMINATING THERMOPLASTIC JACKET

Approved Army-Navy and Special Types for:

H-F Communications • Television • Industrial Electronics • Radio and TV Lead-Ins
Aviation • Test Equipment • Radar, Pulse and Experimental Equipment



Typical Federal RG Types

WHATEVER your requirements for high frequency coaxial cables—*look to Federal*—America's *top* source of *regular* RG types and *pioneer* source of *low temperature* RG types. Federal was *first* to develop the latter . . . *first* to produce it in tremendous quantities.

Federal's complete line of coaxial cables is backed by years of unique experience, rigid quality control and modern manufacturing methods . . . assuring the utmost in durability and dependable performance.

For "a better cable for every high frequency application". . . . for prompt delivery . . . *look to Federal!*

COMPLETE COAXIAL CABLE ASSEMBLIES also are available from Federal . . . to meet your requirements. This new service offers the same *"Precision Production"* that made *"Federal"* the outstanding name in H-F cables. Write today to Dept. D-834.



Manufacturer of America's Most Complete Line of Solid Dielectric Cables

Federal Telephone and Radio Corporation

SELENIUM-INTELIN DIVISION
100 KINGSLAND ROAD, CLIFTON, NEW JERSEY
In Canada: Federal Electric Manufacturing Company, Ltd., Montreal, P. Q.
Export Distributors: International Standard Electric Corp., 67 Broad St., N.Y.

FEDERAL TELEPHONE & RADIO — FTR — AN IT&T ASSOCIATE

5 REASONS

WHY BLAW-KNOX GRATING MEETS ALL SPECIFICATIONS

1. STRENGTH — Electroforged into one rigid piece . . . no loose parts.

2. SAFETY — Twisted cross bars prevent slipping, yet provide level surface.

3. EASY CLEANING — Streamlined electroforged construction makes it easy to clean and paint.

4. OPEN AREA — Cross bar construction and shape admit maximum light and air.

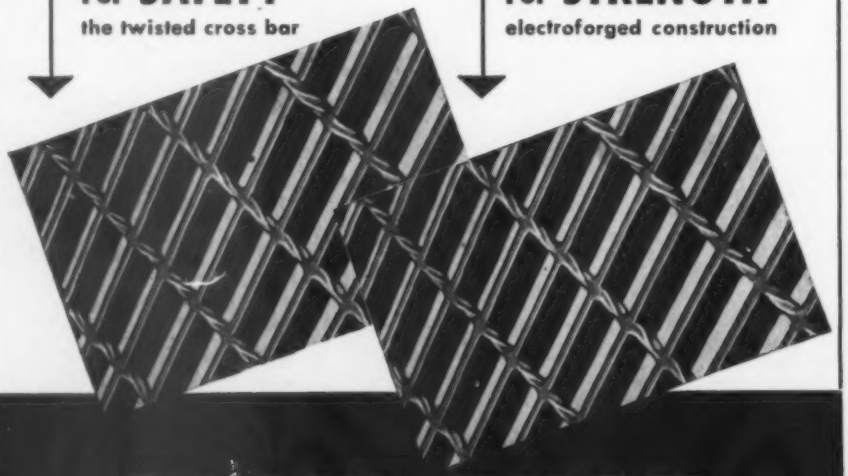
5. EASY TO FIT — One-piece construction simplifies cutting and banding.

BLAW-KNOX Grating and Stair Treads meet *all* specifications. Why not simplify your grating purchases by investigating Blaw-Knox? Complete information in Bulletin 2365—write for your copy today.

BLAW-KNOX DIVISION
of Blaw-Knox Company
2075 Farmers Bank Bldg., Pittsburgh 22, Pa.

For SAFETY the twisted cross bar

For STRENGTH electroforged construction



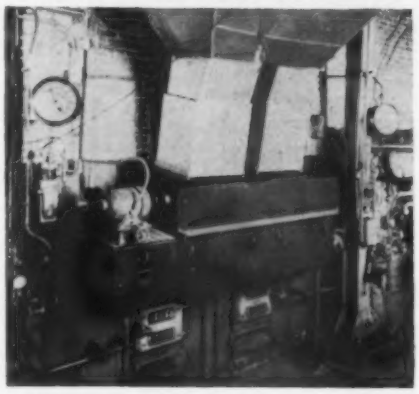
BLAW-KNOX
Electroforged® STEEL GRATING

(*Continued from page* 464)

production for entire day. Constant shrinkage meant that switches had to be tightened daily. Eleven months ago insulators made of laminated glass cloth and silicone impregnating resin were installed. Switches have not required tightening since. The silicone-glass laminates are still in excellent condition. Company engineers estimate service life will extend over several years.

COST SAVING ITEM—543

Fuel Savings 22%



Steam is being produced in Indianapolis plant by 365 hp B & W boiler equipped with multi-burner air-spray-spred stoker replacing old firing equipment. The new equipment functions through a wide range variable speed continuous drive that responds to an automatic combustion control. Coal is brought to the stoker from existing overhead bunker. Chief engineer reports that savings effected with the new firing averaged 22% as compared with coal costs when using old equipment and same combustion controls.

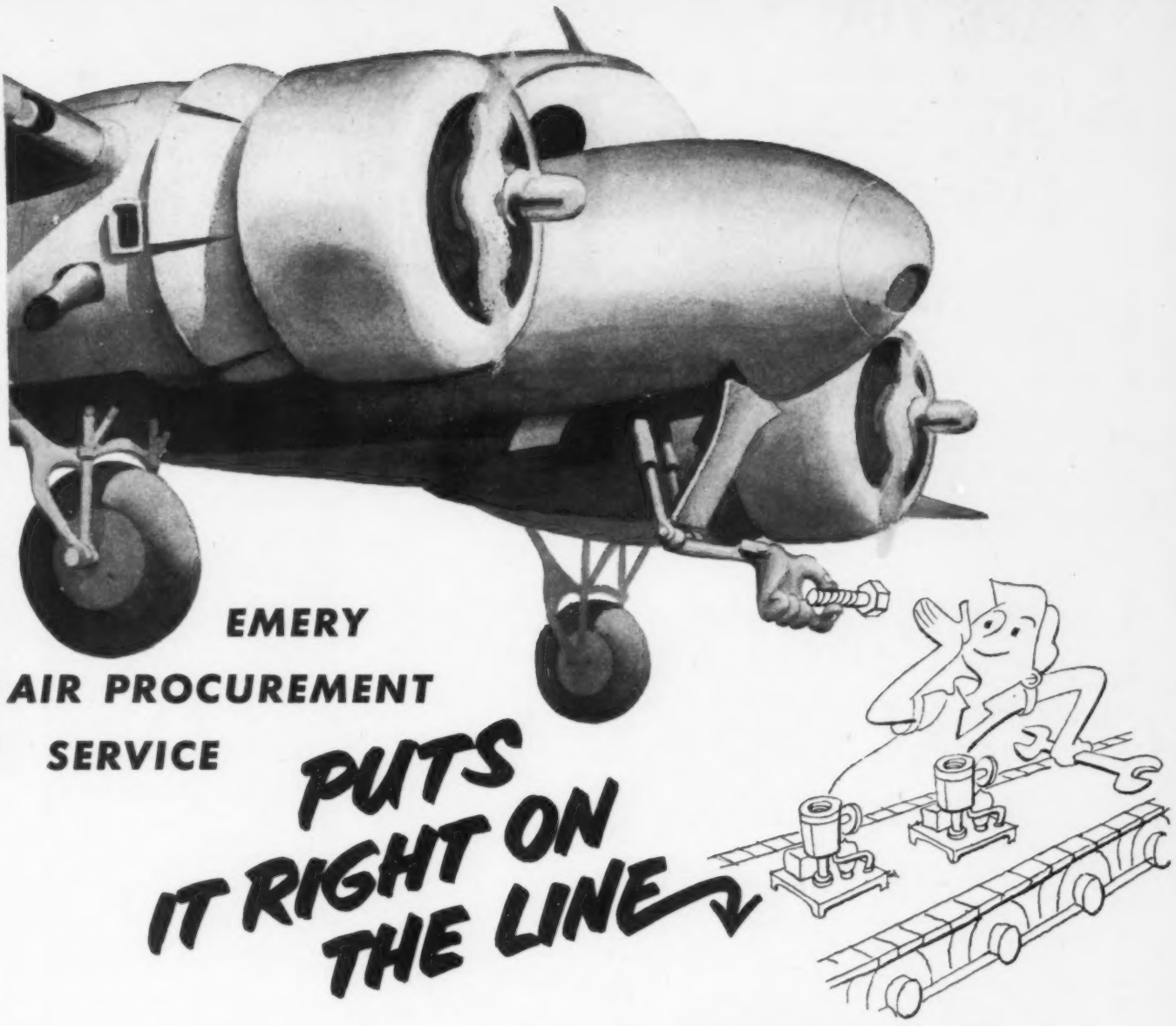
COST SAVING ITEM—544

Cuts Relining Cost $2.10 per Heat



This 5-ton electric furnace is operated by company that specializes in fine quality tool steels. Some months ago the company bought a

(*Please turn to page* 468)



EMERY
AIR PROCUREMENT
SERVICE

PUTS IT RIGHT ON THE LINE

Emery's new AIR PROCUREMENT SERVICE brings your air shipments right to your door from any point in the Nation—faster and more dependably—with just a simple 'phone call . . . and *alerts you well in advance if delivery is unavoidably delayed!*

YES, Emery Air Procurement Service means that, at last, hard pressed production people can get needed production-line components within hours—or, if delivery cannot be made on time, know in advance how to revise their production schedules. And...

All this for the cost of the transportation alone!

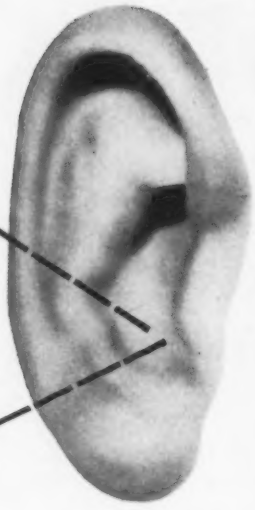
No wonder Emery is fast becoming first choice among traffic and procurement executives everywhere! Call *your* local Emery office today and make your own test of "The World's Fastest Transportation System". . . see for yourself how Emery Air Procurement Service takes the headaches out of any air procurement problem...saves long distance telephone expense... provides a nation-wide network of personal expediters at your service . . . 24 hours a day, 365 days a year!

EMERY AIR FREIGHT CORPORATION

General Office: 801 Second Avenue, New York 17, ORegon 9-1020

Offices in: Atlanta, Baltimore, Boston, Buffalo, Chicago, Cincinnati, Cleveland, Dallas, Dayton, Detroit, Hartford, Houston, Indianapolis, Kansas City, Los Angeles, Milwaukee, Minneapolis-St. Paul, Newark, Philadelphia, Pittsburgh, Rochester, St. Louis, San Francisco, Seattle, Syracuse, Washington, D. C. *Agents in all other major cities and towns in the U.S.A.*

HAVE YOU heard about all these



PERMACEL and TEXCEL TAPES!

HERE'S A HANDY LIST:

PACKAGING & SEALING TAPES

☐ T-44 The Commercial Cellophane Tape.

☐ T-46 High Tack Tape; for tough packaging works.

☐ T-47 High Speed Tape; for fast mechanical and automatic dispensing.

☐ T-99 Clear Acetate Fiber Tape; for industrial packaging where added strength and moisture resistance is required.

☐ T-991 Low MVT Acetate Fiber Tape; for overseas packaging, meeting Government specifications.

☐ P-68 Waterproof Cloth Tape; for overseas packaging, meeting Government specifications.

☐ P-66 White Cotton Cloth Tape; where high strength and transverse tear resistance is needed.

☐ P-15 Fiberglas Reinforced Paper Tape; excellent for bundling parts or cartons for shipments.

MASKING TAPES

☐ P-77 Crepe Paper Tape; the all-around, all-weather masking tape.

☐ P-73 High Temperature Crepe Paper Tape.

☐ P-75 Flatback Paper Tape; for straight line and stenciling work.

HOLDING TAPES

☐ P-02 Double-Faced Paper Tape; for holding light smooth-surfaced components together.

☐ P-50 Double-Faced Cloth Tape; for tougher jobs of holding heavier, rough-surfaced items together.

☐ P-63 Extra-Strength Stainless Cloth Tape; ideal for holding movable parts in position during shipment.

☐ P-72 Stainless Flatback Paper Tape; excellent for splicing heavy materials.

COLORED TAPES

☐ T-45 Colored Cellophane Tape; for identification or for beautifying where a thin attractive tape is required.

☐ T-98 Colored Acetate Fiber Tape; for packaging, binding or edging.

☐ T-97 Tru-Color Acetate Fiber Tape; specially designed to be printed into labels and point-of-sale advertising pieces.

☐ T-67 Colored Extra-Strength Cloth Tape; for heavy-duty packaging where identification is needed.

SPECIAL TAPES AND PRODUCTS

☐ P-20 thru 28 Electrical Tapes; ten specially formulated products to meet the requirements of electrical manufacturing.

☐ P-29 Electricians' Vinyl Insulating Tape; for wire splicing and protection in electrical maintenance and construction work.

☐ P-30 Heavy-Duty Vinyl Insulating Tape; for tough electrical and weathering jobs.

We make other tapes tailored for your particular job requirements. Let us know your problems.

Check tapes you're interested in and mail list to Dept. 2Y, Industrial Tape Corp., New Brunswick, N. J.

®Permacel-TEXCEL PRESSURE-SENSITIVE TAPES!

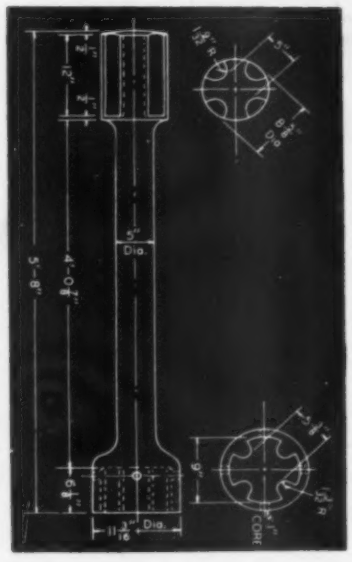
INDUSTRIAL TAPE CORPORATION • NEW BRUNSWICK, NEW JERSEY

(*Continued from page* 466)

BRI gun to maintain the sidewalls with special refractory material. Formerly the furnace had to be relined about every six weeks. By the use of the gun, the linings have been kept in such good repair that average life has been extended to seven weeks. The 21 additional heats per lining have reduced lining cost $2.10 per heat. And the added steel production resulting from less frequent shutdowns is another dividend.

COST SAVING ITEM 545

Cash Savings 83% Over Six Months Period

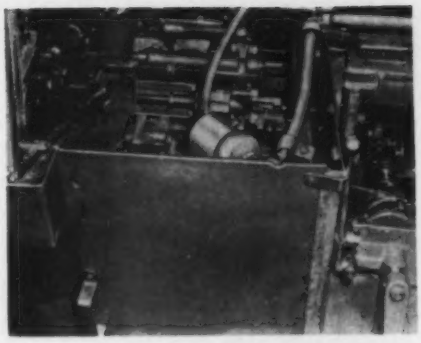


Coupling boxes and spindles were wearing out at rate of one box and one spindle each month on rolling mill stand of major steel producer. Combination spindle and coupling box unit cast by special process was used as replacement. The new unit gave six months of service on the same stand, resulting in cash saving of $700 for the period. The producer had paid $648 for spindles and $192 for coupling boxes ($840) for replacement equipment during previous six months period. The single combination unit cost $140. The casting method by which the combination unit was produced involves the casting of a tough, austenitic steel alloy on a base of plain carbon steel.

COST SAVING ITEM 546

CO Extinguisher on Screw Machines Cuts Down Time

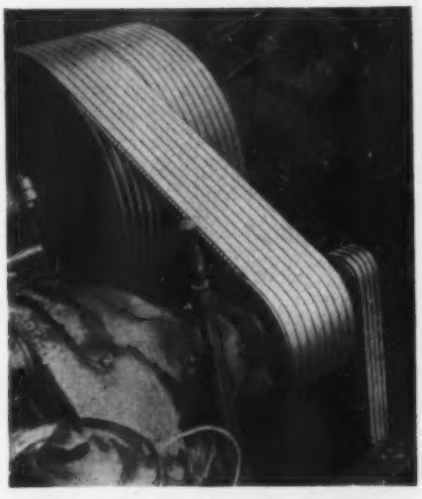
Installation of carbon dioxide automatic fire extinguishing system on automatic screw machines of De-



troit automobile manufacturer is credited with enabling each machine to do $8800 more production. Previously, cutting oil fires were put out with portable foam extinguishers. Down time was 16 hours and some times as much as three days to clean up after the fire and replace the coolant. Carbon dioxide does not contaminate oil or harm material. Hence down time never exceeds one hour and no oil need be replaced. The C.O. installation paid for itself the first month.

COST SAVING ITEM—547

Cog V-Belts Deliver More Power and Solve Space Problem

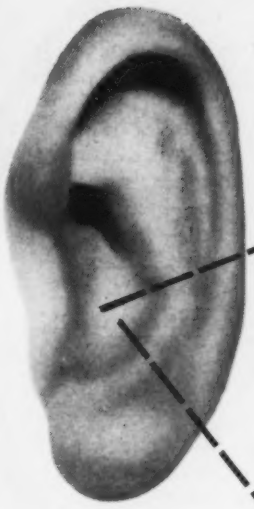


The illustrated V-belt drive transmits power from 2 diesel engines on a large dredge pump. Formerly, 16 ordinary V-belts delivered 140 constant horsepower. To meet increased production needs, the Detroit Company wanted to step up the HP to 188. The engines had the reserve power but using it meant adding 8 more belts to the pump drive, but there was no room for pulleys to accommodate the additional belts. Problem was solved by the installation of the cog V-belts. The same number of cog belts now carry the increased load.

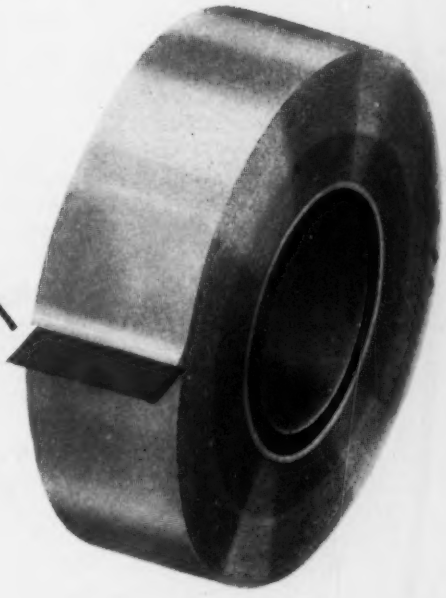
COST SAVING ITEM—548

(*Please turn to page* 470)

Have you heard about



BLUE TAB?



THE FIRST AND ONLY CELLOPHANE TAPE SPECIALLY DESIGNED FOR COMMERCIAL USE!

Here are the facts about BLUE TAB LONG LENGTH TEXCEL

1. Sure Stick—due to new adhesive formula.
2. Less Breakage—because special ingredient permits easier release from roll.
3. Eye Appeal—a thing of beauty on the roll; and it's really transparent, too.

Try and compare Blue Tab **TEXCEL**—whether used in the office, factory or store, Blue Tab is meeting all expectations—it really satisfies!

BLUE TAB LONG LENGTH TEXCEL®

INDUSTRIAL TAPE CORPORATION • NEW BRUNSWICK, NEW JERSEY

Makers of Texcel Cellophane Tapes and a complete line of pressure-sensitive tapes for industry.

JOHNSON UNIVERSAL BRONZE

AS NEAR AS YOUR PHONE

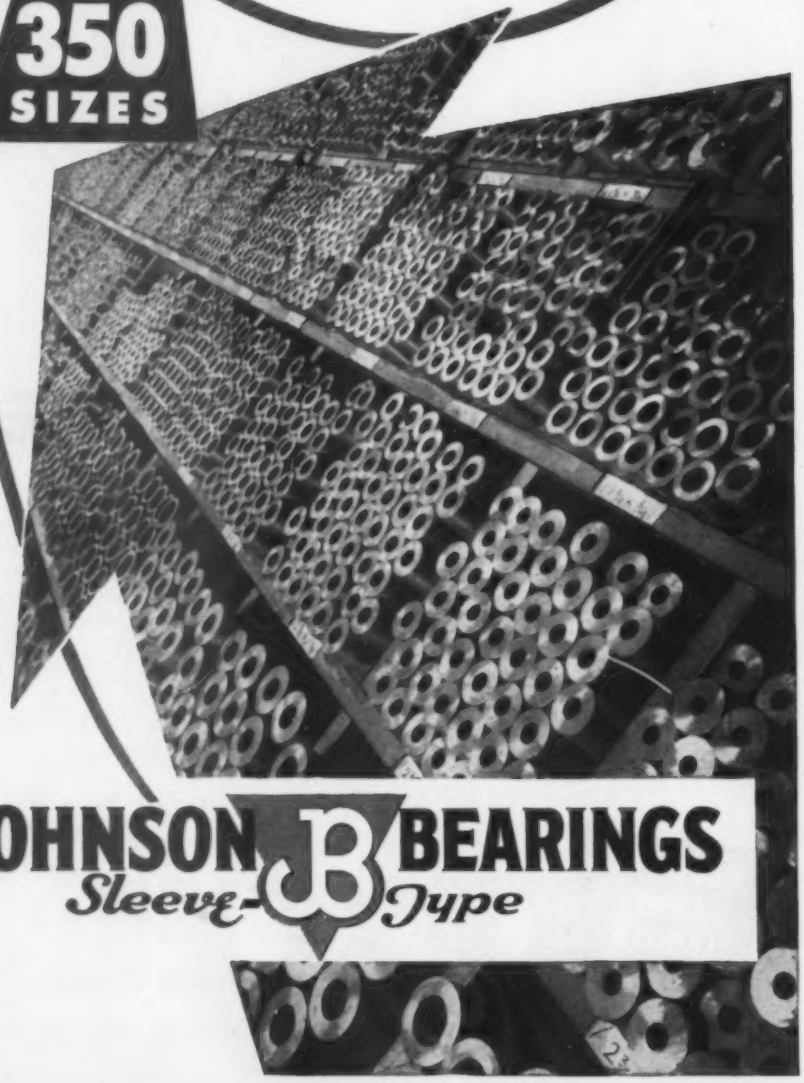


From this huge stock of Johnson Bronze Bars you can select your needs by bearing size. They are completely machined—inside diameter, outside diameter, and ends—with only a 1/64" cut to bring to bearing size. You will find many uses for them . . . bearings, bushings, washers, thrust plates, etc. And they are available from stock at your authorized Johnson Distributor and in 23 warehouses from coast to coast.

Johnson Universal Bronze is cast from highest quality bearing bronze, an alloy that cuts easily, yet is thoroughly serviceable. Cored bars are made with inside diameters from 1/2" to 7 3/4", outside diameters from 1" to 10". Solid bars from 5/8" to 8" diameters. Call your Johnson Bearing distributor.

JOHNSON BRONZE CO.
450 S. Mill St., New Castle, Pa.

OVER 350 SIZES



JOHNSON JB BEARINGS
Sleeve-Type

(*Continued from page* 469)

Reclaimed Equipment Valued at $200,000



Salvage Department at the Ashland plant, Armco Steel Corporation, is described as a "hospital" as it gives new life to tired and scarred equipment. Since the department was formed in 1942 to save scarce material difficult to replace during war times, it has been paying off with savings. Ten men are employed in the department, and during 1950 the department's savings in reclaiming used but good equipment totalled nearly $200,000. Picture shows a "reclaimed" valve, and at right one to be rejuvenated.

COST SAVING ITEM—549

Protection for Coal Cutter Swivel

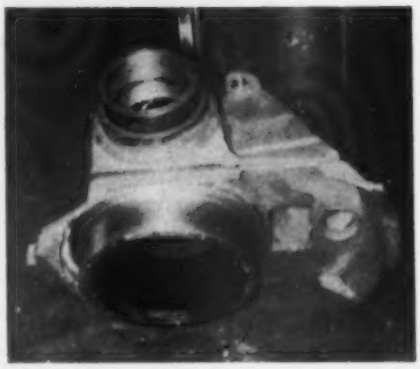


Illustration shows coal cutter swivel rebuilt by metallizing, as protection against corrosive mine water. Cost to replace is $835.00. Wear and corrosion from mine water occur on outside diameter of the swivel surface, while base of swivel wears

(*Please turn to page* 472)

In the New Unit Rig Drawworks Drum Clutch

MEEHANITE® CASTINGS MEAN DEPENDABILITY - QUALITY

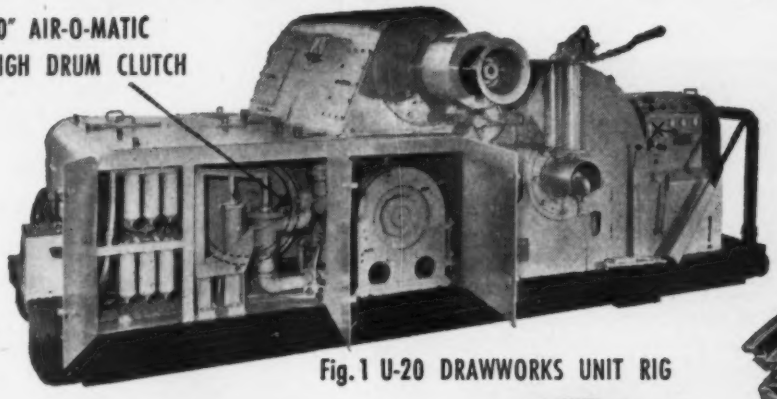


Fig. 1 U-20 DRAWWORKS UNIT RIG

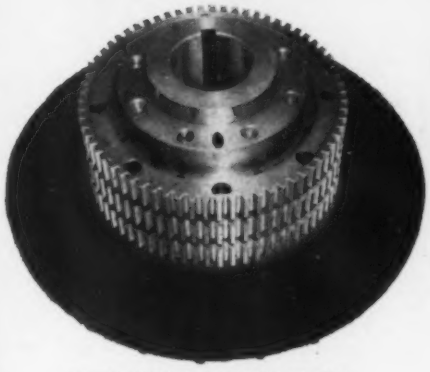


Fig. 2 HUB and BACK PLATE



Fig. 3 FLOATING PLATE

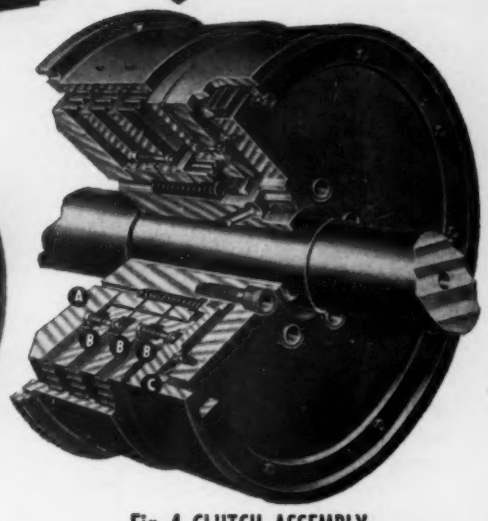


Fig. 4 CLUTCH ASSEMBLY

The proof that in important new designs and improved products such as the U-20 Unit Rig (Fig. 1), manufactured by Unit Rig Company, Tulsa, Oklahoma, Meehanite castings are regularly meeting rigid specifications is quickly provided by this example.

A feature of the U-20 Rig is a 30-inch Air-O-Matic clutch vital to its smooth dependable operation. In this clutch the following Meehanite castings are specified:

1. Hub and back plates (Fig. 2)
2. Floating plates (Fig. 3)
3. Pressure plate (Fig. 4)

To these components Meehanite castings contribute high strength, good anti-friction properties, machinability and uniform high quality.

For proof that Meehanite castings can improve your product write for the Meehanite Handbook.

Take *YOUR* Casting Problem To A MEEHANITE FOUNDRY

American Brake Shoe Co.	Mahwah, New Jersey
The American Laundry Machinery Co.	Rochester, New York
Atlas Foundry Co.	Detroit, Michigan
Banner Iron Works	St. Louis, Missouri
Barnett Foundry & Machine Co.	Irvington, New Jersey
E. W. Bliss Co.	Hastings, Mich. and Canton, O.
Builders Iron Foundry	Providence, Rhode Island
Compton Foundry	Compton, Calif.
Continental Gin Co.	Birmingham, Alabama
Crawford & Doherty Foundry Co.	Portland, Oregon
The Cooper-Bessemer Corp.	Mt. Vernon, Ohio and Grove City, Pa.
Empire Pattern & Foundry Co.	Tulsa, Oklahoma
Farrel-Birmingham Co., Inc.	Ansonia, Connecticut
Florence Pipe Foundry & Machine Co.	Florence, New Jersey
Fulton Foundry & Machine Co., Inc.	Cleveland, Ohio
General Foundry & Manufacturing Co.	Flint, Michigan
Greenlee Foundry Co.	Chicago, Illinois
The Hamilton Foundry & Machine Co.	Hamilton, Ohio
Hardinge Company, Inc.	New York, New York
Hardinge Manufacturing Co.	York, Pennsylvania
Johnstone Foundries, Inc.	Grove City, Pennsylvania
Kanawha Manufacturing Co.	Charleston, West Virginia
Lincoln Foundry Corp.	Los Angeles, California
E. Long Ltd.	Orillia, Ontario
Otis Elevator Co., Ltd.	Hamilton, Ontario
The Henry Perkins Co.	Bridgewater, Massachusetts
Pohlman Foundry Co., Inc.	Buffalo, New York
Rosedale Foundry & Machine Co.	Pittsburgh, Pennsylvania
Ross-Meehan Foundries	Chattanooga, Tennessee
Shenango-Penn Mold Co.	Dover, Ohio
Sonith Industries, Inc.	Indianapolis, Ind.
Standard Foundry Co.	Worcester, Massachusetts
The Stearns-Roger Manufacturing Co.	Denver, Colorado
Traylor Engineering & Mfg. Co.	Allentown, Pennsylvania
Valley Iron Works, Inc.	St. Paul, Minnesota
Warren Foundry & Pipe Corporation	Phillipsburg, New Jersey

"This advertisement sponsored by foundries listed above."

MEEHANITE® NEW ROCHELLE, N. Y.



"I never realized the difference in floor absorbents until I saw this test"



Follow the lead of other alert maintenance men, purchasing agents and safety engineers and get the true facts on floor absorbents. With his portable laboratory, your Eagle-Picher man can give you—right at your desk—a scientific analysis of your floor absorbent. *There's no obligation on your part.*

By this scientific test, you'll find how much coverage you're getting . . . how much oil and water are being absorbed for given bulk. Yes, and you'll discover how much your absorbent is costing you in terms of absorption and coverage . . . how much it gives you in terms of safety and light reflectivity.

So that you may truly form your own conclusions, your Eagle-Picher man will be happy to actually let you conduct the analysis yourself.

We want you to see that Eagle-Picher Floor Dry is insoluble . . . chemically inert and non-combustible . . . that its light weight assures exceptional coverage . . . that its light color makes for brighter working areas, extra safety.

Write today for full information.

Eagle-Picher Industrial Floor Dry No. 85

EAGLE EP PICHER

THE EAGLE-PICHER COMPANY

Since 1843 General offices: Cincinnati (1), Ohio

(*Continued from page* 470)

on the inside diameter. The part is mounted in a lathe and rebuilt by metallizing to provide protection against severe service conditions. It is then finish turned, using 883 Carboloy bit, 3/4" x 3/4". Since only a few pounds of metal are required, savings are tremendous both in material and down time.

COST SAVING ITEM—550

Lubricant Saves $1750 for Each Gage



Large motor products firm of Detroit made saving of $1750 for each precision gage used, by treating them with special gage lubricant. The gages cost $250 each, and gave eight times normal service after treatment with this lubricant.

COST SAVING ITEM—551

NEW YORK PURCHASING DEPT. STARTS ECONOMY PROGRAM

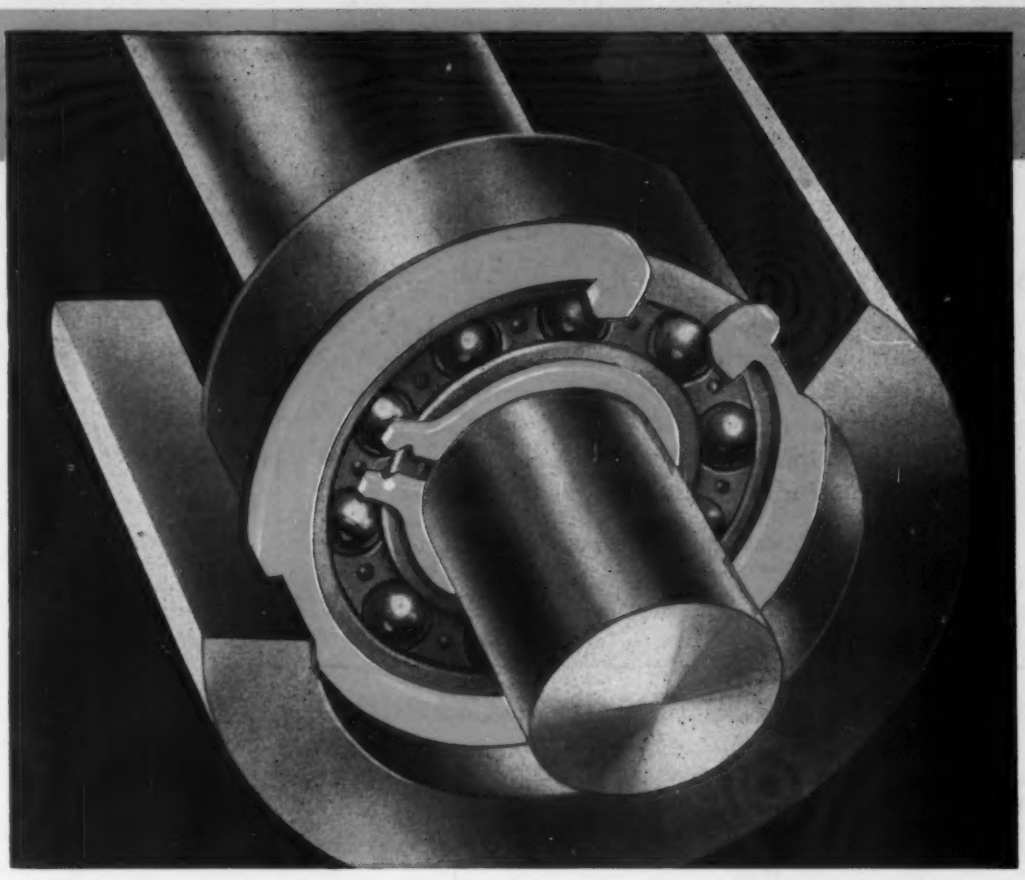
More economical and efficient buying methods being instituted in a new program are expected to result in substantial savings by the New York City Department of Purchase. John Splain, Commissioner of Purchase, declared recently that the program had evolved from four years of seminars on economic conditions, held for officials of the department.

Requisition by the "Wholesale"

One source of savings being tapped is the small order problem. The average cost of processing a single order for supplies is ten dollars, according to the Commissioner's estimate. Many of the requisitions now being handled by the department call for purchases costing much less than that sum. By submission of requisitions on a "wholesale" basis, substantial savings can be realized, it is felt, since the city has warehouse space for storing more than $5,000,000 worth of goods and supplies.

• Save Time • Save Materials

• Save Money!



Examine the designs of **all** your products and machines. No doubt you can use retaining rings on axles and in housings – not **only to save assembly time, but to save weight, parts and space.**

The use of these inexpensive yet efficient artificial shoulders is already widespread, and is increasing daily.

There are literally thousands of places in which redesigning for retaining rings can increase your profits and improve your products – uses ranging from heavy duty engines and drill presses to toys, gadgets and small parts of innumerable articles.

It's wasteful to cut down shafts to make shoulders. Redesign to groove smaller shafts and housings and use these high grade steel rings.

Let our engineers consult with you. Send for folders.

Don't pass up this opportunity to increase profits.

THE NATIONAL LOCK WASHER CO.

NEWARK 5, NEW JERSEY • MILWAUKEE 2, WISCONSIN



PAGE FENCE - Since 1883

• AMERICA'S FIRST WIRE FENCE •



Defense against hazards which could hinder or stop production is a major function of Page Chain Link Fence, guardian of persons and property for more than 60 years. NOW is the time to consult the skilled Page Fence erecting firm near you, whose name we will send with fence data on request and who will submit cost estimates, no obligation. For information

Write to *PAGE FENCE ASSOCIATION in Monessen, Pa., Atlanta, Bridgeport, Chicago, Denver, Detroit, Los Angeles, Philadelphia, New York or San Francisco.*

PRODUCT OF PAGE STEEL & WIRE DIVISION OF AMERICAN CHAIN & CABLE COMPANY, INC.

WILL YOUR NAME BE REMEMBERED?

GITS Quality Plastic Products

Cement friendship and esteem—to bring a warm glow of remembrance! The cost is small . . . the value high!



GITS "Super Right Angle" Unbreakable Plastic FLASHLIGHT—

one of the famous "Mile of Light" Flashlights. Nickel plated brass, lacquered, perfect parabolic reflector gives a strong beam of prefocused light. 3-way "ON-OFF" and signaling switch always works. Transparent or lustrous colored case.



No. 100 "Plastic Eye" Flashlight



No. 200 Junior "Plastic Eye" Flashlight

GITS "ONE-HAND" KNIFE
Highest quality carbon steel blade, safelocks in 5 positions. Unbreakable plastic handles in six lustrous colors.

GITS RAZOR-NIFE AND KEY CHAIN
Razor blade with a safety handle. Refillable. Assorted lustrous colors.

GITS LETTER OPENER
Transparent, with offset magnifying handle. Endurably sharp edges.

PAR-KIT No. 377
Ingenious combination of wind shield ice scraper, key chain and coin holder. Holds 2 nickels and 2 pennies —always ready for parking meter.



ASK your specialty jobber to show you the complete line of Gits Quality Plastic Products, or write direct, using coupon below.

GITS MOLDING CORP.
4640 W. HURON STREET, CHICAGO 44, ILL.

Gentlemen:

☐ Please send me at once sample of the item I have checked below and prices in ..... quantity.
☐ Plain ☐ With imprint

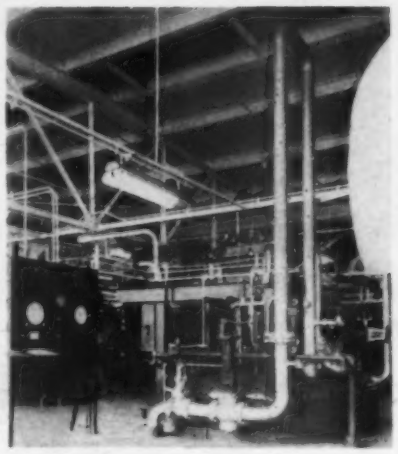
☐ "Plastic Eye" Flashlight
☐ "Plastic Eye Jr." Flashlight
☐ "Super Right Angle" Flashlight
☐ "One-Hand" Knife
☐ Razor-Nife and Key Chain
☐ Letter Opener
☐ Nail File
☐ Thimble
☐ Stir Stix
☐ Bracelet Key Holder
☐ Shoe Horn
☐ Key Tag
☐ Match Pac
☐ Par-Kit

☐ The items you illustrate do not fully satisfy my needs, so please send me your complete catalog and full information.

(PLEASE PRINT)
NAME ..... TITLE .....
COMPANY .....
ADDRESS .....
CITY ..... ZONE ..... STATE .....

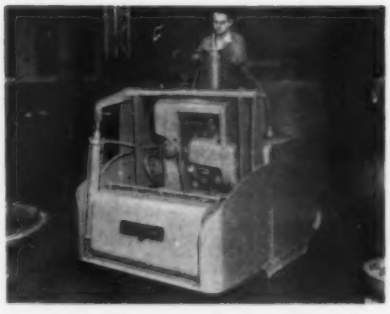
New Products

Fittings Eliminate Leakage Problems



Use of Tube-Turn fittings for directional changes in this efficient piping system, on the top portion of a fermentation tank in which penicillin is produced, has resulted in these advantages: optimum flow conditions are obtained, the piping layout is compact, and leakage problems have vanished. Type 316 stainless steel was specified since it provides adequate protection from the corrodents encountered. Installation is in a plant producing penicillin, streptomycin, and other antibiotics.

Machine Removes Grime Faster Than Large Crew

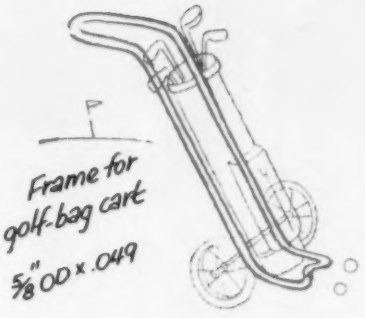


A new one-man scarifying and cleaning machine can shear off heavy grime from large trucking aisles faster than a 6 to 18-man crew, says G. H. Tennant Co., 2530 N. Second St., Minneapolis 1, Minn. The machine cuts loose and picks up packed grease, dirt and metal cuttings at speeds up to 11 mph. It cleans a 36" path, and has a capacity of 20,000 to 60,000 sq. ft. per hour. A unique feature is a hydraulically-equipped dirt hopper

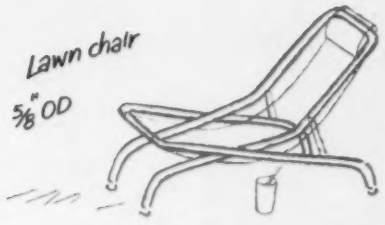
(*Please turn to page* 476)

Bundyweld "Doodles"

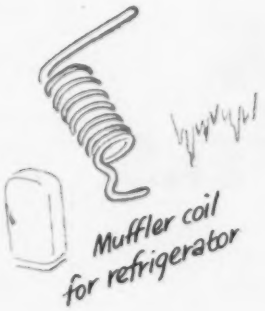
to jog a designer's imagination



Frame for golf-bag cart
5/8" OD x .049



Lawn chair
5/8" OD



Muffler coil for refrigerator



Radiant heating coil

Put Bundyweld Tubing into that part of yours and get improved performance. Put Bundyweld through your production lines and get lowered fabrication costs.

If you need design or fabrication help, depend on Bundy skills, the industry's finest, to save you time, materials, money. If you choose, have Bundy fabricate and ship your parts—in any quantity and on time. Write for catalog today. ***Bundy Tubing Company, Detroit 14, Michigan.***

Bundyweld® Tubing

DOUBLE-WALLED FROM A SINGLE STRIP

Leakproof
High thermal conductivity
High bursting point
High endurance limit
Extra-strong
Shock-resistant
Ductile
Lightweight
Machines easily
Takes plastic coating
Scale-free
Bright and clean
No inside bead
Uniform I.D., O.D.

WHY BUNDYWELD IS BETTER TUBING



Bundyweld starts as a single strip of copper-coated steel. Then it's . . .



continuously rolled twice around laterally into a tube of uniform thickness, and



passed through a furnace. Copper coating fuses with steel. Presto . . .



Bundyweld, double-walled and brazed through 360° of wall contact.



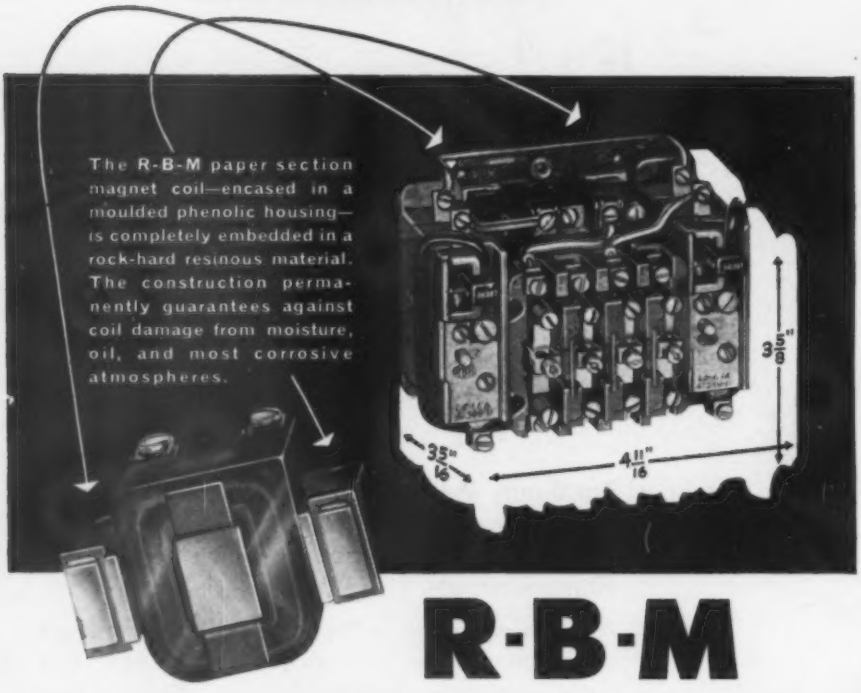
NOTE the exclusive patented Bundyweld beveled edges, which afford a smoother joint, absence of bead and less chance for any leakage.

Bundy Tubing Distributors and Representatives: ***Cambridge, 42, Mass.:*** Austin-Hastings Co., Inc., 226 Binney St. • ***Chattanooga 2, Tenn.:*** Peirson-Deakins Co., 823-824 Chattanooga Bank Bldg. • ***Chicago 32, Ill.:*** Lapham-Hickey Co., 3333 W. 47th Place • ***Elizabeth, New Jersey:*** A. B. Murray Co., Inc., Post Office Box 476 • ***Philadelphia 3, Penn.:*** Ryan & Co., 1717 Sansom St. • ***San Francisco 10, Calif.:*** Pacific Metals Co., Ltd., 3100 19th St. • ***Seattle 4, Wash.:*** Eagle Metals Co., 4755 First Ave. South ***Toronto 5, Ontario, Canada:*** Alloy Metal Sales, Ltd., 881 Bay St. • **Bundyweld nickel and Monel tubing is sold by distributors of nickel and nickel alloys in principal cities.**

VISIBILITY

ACCESSIBILITY

COMPACTNESS



R-B-M
AC MAGNETIC STARTERS

The R-B-M melamine arc chamber extinguishes the arc of loads far in excess of maximum ratings, without impairing the accessibility of the stationary and movable contact assemblies.

A quick glance immediately shows which overload has tripped.

R-B-M puts more usable contact material at the center of arcing to provide greater wear before replacement.

Magnet and coil assembly, as well as stationary and movable contacts, can be removed independently of other components by using only a screwdriver and without disconnecting external wiring.

Write Dept. J-5 for Bulletin 605

RBM

R-B-M DIVISION
ESSEX WIRE CORP.
Logansport, Indiana

MANUAL AND MAGNETIC ELECTRIC CONTROLS
—FOR AUTOMOTIVE, INDUSTRIAL, COMMUNICATION AND ELECTRONIC USE

(*Continued from page* 474)

that lifts to a 35" clearance, then dumps directly into a trash box. Two types of scarifying cylinders are used, depending on soilage conditions. "Planing" action leaves aisles smooth, dry and firm-surfaced for faster trucking.

Flexible, Low-Cost Mobile Electrification

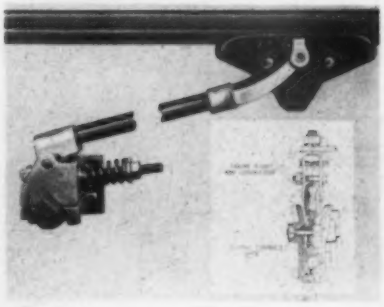
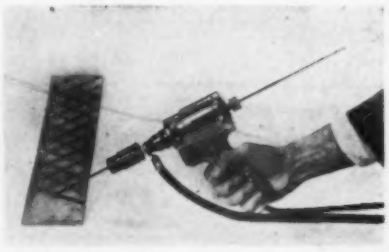


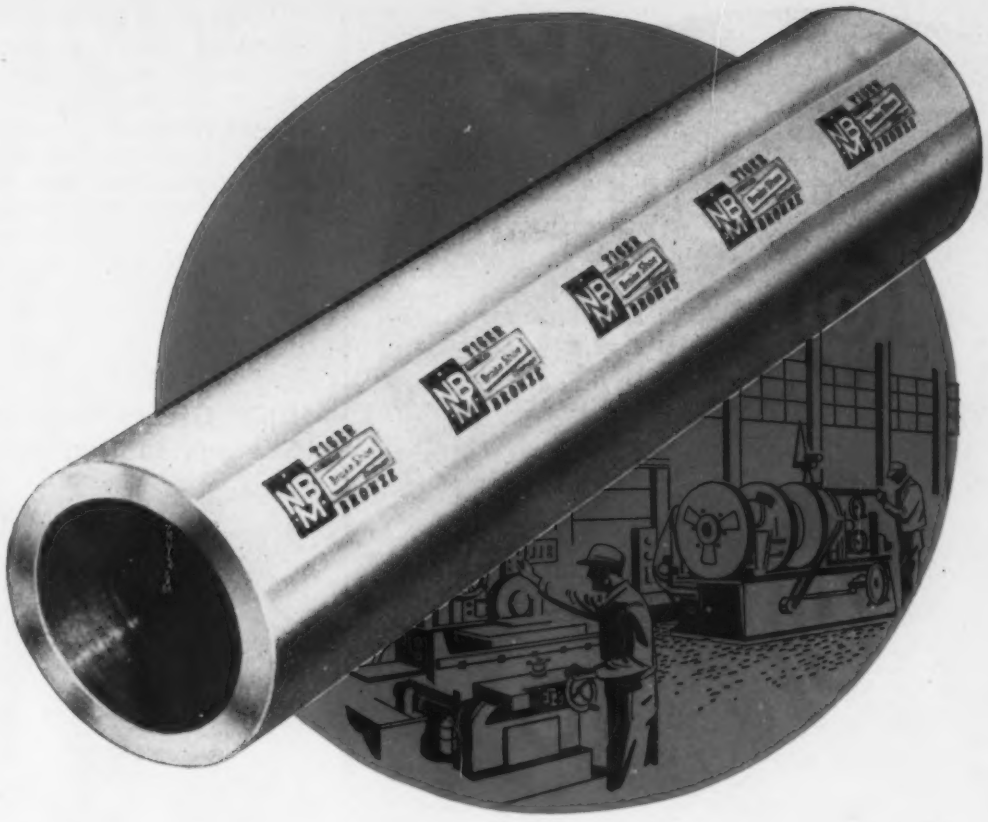
Figure-8-bar conductors used to supply power to bridge cranes, monorail hoists, etc. are an industrial hazard when bare. A new trolley system, designed to insulate existing conductors, or for installation as a completely new system, is offered by Benbow Manufacturing Co., 1285 Rollins Rd., Burlingame, Calif. The system is said to feature a high safety factor, and low cost. Basically, it consists of a sheath of insulation material that snaps over the 8-bar conductor, and a sliding shoe collector, held against the insulated 8-bar conductor by spring action. The sliding shoe makes contact with the conductor through a continuous, narrow opening at the bottom of the sheath. The system is installed quickly and easily says Benbow.

Tool Resurfaces Worn Safety Treads



Worn safety treads on stairs, landing, ramps, machine platforms, and a number of other industrial areas are not only a maintenance headache, but a serious threat to safety. Metallizing Engineering Co., Inc., 38-14 30th St., Long Island City, N.Y., says its new Ruf Tred tool will deposit a rough, file-hard,

(*Please turn to page* 478)



Saved:

35% on Bronze Bar Stock!

How a machine shop saved 30¢ per pound through direct shipments of N-B-M "Tiger" Bronze Bars.

If you use bronze bar stock—and are looking for a quick way to reduce maintenance or production costs—you'll be interested in how a Michigan Machine Shop saved $700 in one year on bronze purchases alone!

They formerly bought finished bronze bar stock locally—but about a year ago started ordering "Tiger" Bronze direct from National Bearing Division.

Result? **Their cost was immediately cut 30¢ per pound . . . thanks to direct shipments. And equally important, these direct shipments are made overnight from one of our strategically located warehouses!**

This low price of N-B-M "Tiger" Bronze is made possible by these direct-to-you shipments . . . NOT by any sacrifice in quality. As a matter of fact, "Tiger" Bronze is highly anti-frictional to insure longer wear, and has physical properties that permit it to resist shocks, yet embed foreign particles.

13″ lengths of "Tiger" Bronze are available in all popular sizes of machined or "as-cast" cored and solids, or "as-cast" hexagons . . . *available for prompt shipment of the bar size you want, when you want it.*

For longer—and lower cost—bearing service in your plant or product, try "Tiger" Bronze on your next order!

Write today for quotations and free catalog listing bar sizes, types, and "Tiger" Bronze alloy characteristics.

AMERICAN **Brake Shoe** COMPANY

NATIONAL BEARING DIVISION

4940 Manchester Avenue • St. Louis 10, Mo.

PLANTS IN: ST. LOUIS, MO. • MEADVILLE, PA. • NILES, OHIO • PORTSMOUTH, VA. • ST. PAUL, MINN. • CHICAGO, ILL.

Standout Identification

at the right price!



Long experience, skilled craftsmanship, plus the latest and best equipment enable us to produce high quality metal plates for no more than you may pay for inferior identification. A sparkling metal plate spotlights your product, reflects quality and lends distinction. You're assured of lasting identification, clearness, and permanent readability with plates produced by Chicago Thrift-Etching Corporation.

GET OUR QUOTATION

Send a rough sketch, blueprint or sample, with specifications, for quotation —or write us fully about your requirements in name plates, instruction plates, dials, panels, scales, etc. Here standout identification and enduringly fine appearance costs no more!

ALUMINUM ANODIZING

We are equipped to apply this protective coating to aluminum parts and products by the exclusive Alumilite process—in a wide range of attractive colors. Your request for quotation is solicited.

CHICAGO THRIFT-ETCHING CORPORATION

1555 North Sheffield Ave., Chicago 22, Illinois, Dept. C

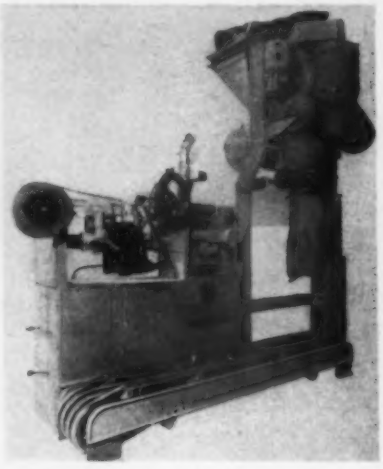
Metal Name Plates, Dials and Panels, Etched or Lithographed • Etched Metal Scales, Clock Dials, Trophy Plates, Plaques, Advertising Specialties • Etched Metal Panels for elevator and architectural uses • Coin Banks • Lithographed or Screened Plastic Name Plates or Dials • Aluminum Anodizing by the Alumilite Process.

SUBSIDIARY OF DODGE MANUFACTURING CORPORATION, MISHAWAKA, INDIANA

(*Continued from page* 476)

permanent safety surface on these worn treads at high speed and low cost. A vibrating electrode holder, the tool eliminates the need for expensive cleat or trowelling compounds, makes tearing out of stairs or other structural members unnecessary. The tool puts non-slip bead lines on metal surfaces at 5′ a minute. Ten linear feet give positive grip on one square foot of surface.

Unit Offers Substantial Savings In Bag Packing



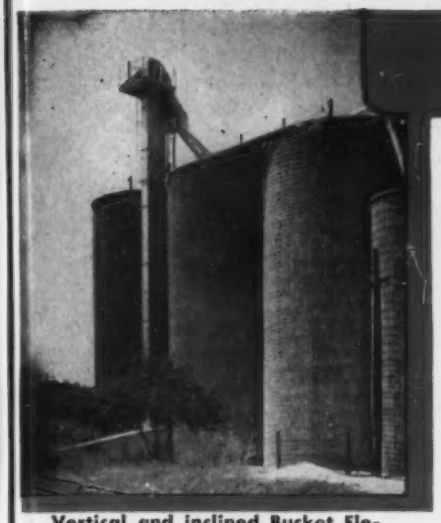
The Packer Aid, made by Bemis Bro. Bag Co., 408 Pine St., St. Louis 2, Mo., is a complete mechanism which fills, weighs and closes 50 lb. and 100 lb. SOM multiwall or textile bags with products which require auger packing. Savings due to reduction bag sizes, fewer personnel needed for operation, and elimination of weight inaccuracies are described as substantial. One mill owner has reported that savings in labor and production due to weight accuracy alone paid for the machine within a year. It is compact, easy to install and requires no expensive alterations to existing plant facilities.

Dual Shock Absorbing Heavy Duty Caster Rig

A dual shock absorbing heavy duty caster rig, originally designed for a specific Air Force application, has been announced by Aerol Co., Inc., 2820 Ontario St., Burbank, Calif. With a rated capacity of 1500 lbs., it has an 8″ footprint at 1000 lbs. Two heavy duty, rubber tread aluminum wheels with swivel lock are sprung by two heavy duty nonfatiguing, easily replaceable and

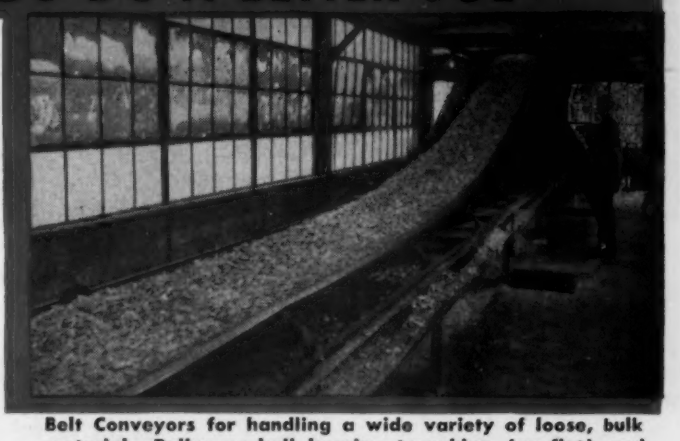
(*Please turn to page* 480)

A WIDE RANGE OF EQUIPMENT TO HELP YOU DO A BETTER JOB



in

FEEDING
CONVEYING
ELEVATING
REDUCING
DRYING
COOLING
PACKING
SCREENING



Vertical and inclined Bucket Elevators with spaced or continuous buckets mounted on chain or belt. A complete line of standards.

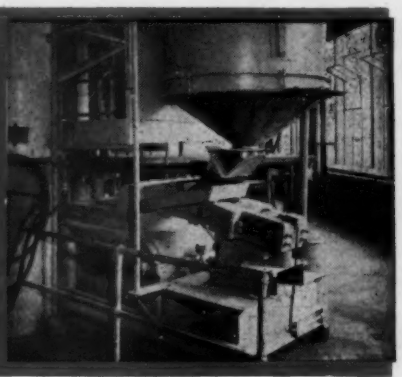
Belt Conveyors for handling a wide variety of loose, bulk material. Roller or ball bearing troughing (or flat) and return Idlers for belt widths from 14″ to 60″. Large capacities and a steady flow.



Spiral Conveyors will handle many kinds of material with clean, dustless operation. No return strand. Standard types — also many special designs and applications. Interchangeable with other makes — built to industrial standards.



A complete line of Crushers, Pulverizers and Shredders for reducing most any kind of material to desired fineness.



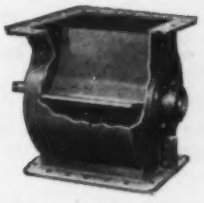
Electric Vibrating Feeders provide absolute control over feeding operations. Open or closed pan, or tubular decks. Capacities from a few ounces up to many tons per hour.



Car Pullers for spotting from one to six cars. Two sizes.



Rotary Bin Check Valves —insure a constant, uninterrupted flow of fine flooding material to vibrating Feeders or WAYTROLS. Also Bin Level Indicators.



Rotary-type Feeder for feeding finely pulverized material. Also Spiral, Apron, Belt, Plate and electric-vibrating type Feeders.



Low Head Barrel Packer for economy in packing operations. Reduces size of containers, increases capacity and cuts shipping costs. Also supplied with deck to provide conveying action during packing operations.

THE JEFFREY MANUFACTURING COMPANY

784 North Fourth St., Columbus 16, Ohio

1877 — 75 YEARS — 1952

Baltimore 2 · Beckley, W. Va. · Birmingham 3 · Boston 16 · Buffalo 2 · Chicago 1 · Cincinnati 2 · Cleveland 15 · Denver 2 · Detroit 13 · Forty Fort, Pa. · Harlan, Ky. · Houston 2 · Jacksonville 2 · Milwaukee 2 · New York 7 · Philadelphia 3 · Pittsburgh 22 · St. Louis 1 · Salt Lake City 1

Jeffrey Mfg. Co. Ltd., Montreal, Canada
British Jeffrey-Diamond Ltd., Wakefield, England
Jeffrey-Galion (Pty.) Ltd., Johannesburg, S. A.
The Galion Iron Works & Mfg. Co., Galion and Bucyrus, Ohio
Galion (Great Britain Ltd.), Wakefield, England
The Ohio Malleable Iron Co., Columbus, Ohio
The Kilbourne & Jacobs Mfg. Co., Columbus, Ohio



Quality features packed into every inch of this outstanding white tape:

the best WHITE TAPE made at the lowest price yet

Snow-white blade with bold, legible, jet-black numerals and graduations. Graduated in 32nds for first 6 inches.

Sturdy die-cast case heavily chrome-plated, calibrated for quick reading inside and outside measurements.

Blade ½" wide made of finest high carbon steel—tempered—Bonderized—enamelled—baked.

Blade replaceable in seconds—without tools—without even opening case. And Evans replacement blades cost far less.

Exclusive Evans automatic brake gives smoother push-pull action with absolutely no "creeping" of tape into case.

Underside is white too. Mark with ordinary pencil, remove mark with flick of thumb.

Every "Evans White-Tape" is unconditionally guaranteed.

Check these list prices:
10-ft. $1.49 8-ft. $1.19 6-ft. 98¢

®7847 **Evans & CO.** ELIZABETH, N. J. MONTREAL, QUE.

Prices higher in far west and Canada. Order from your tool distributor.

Makers of Evans Folding Rule and "The Folding Yardstick"

for STAMPINGS . . .
Better see BOSSERT!

EXPERIENCE

For over fifty years Bossert has served leaders in a wide range of industries, producing pressed metal parts and assemblies for home appliances, electrical equipment, furnaces, water heaters, tractors, business machines, sink basins, farm and automotive accessories, etc. For engineering ingenuity acquired through experience
BETTER SEE BOSSERT!

KNOWLEDGE

The "know how" that Bossert has acquired over many years in redesigning and converting to stampings is available to you. Our Development Department will gladly examine your product, suggest constructive redesigning ideas, and submit quotations. If you use stampings now, or should use stampings in your product
BETTER SEE BOSSERT!

FACILITIES

200,000 sq. ft. floor area, over 80 presses of all types, ranging from 15 to 1600 tons; hot or cold drawing (All Metals), up to ¾" thick; capacity for deep drawing 54" diameter x 18" deep. If you are looking for a preferred stamping source

BETTER SEE BOSSERT!

Assembling and finishing of all types. Welding, gas and electric — atomic hydrogen, stitch and seam.

Blanking, forming, drawing and heat treating. Coining, sizing, and close tolerance production.

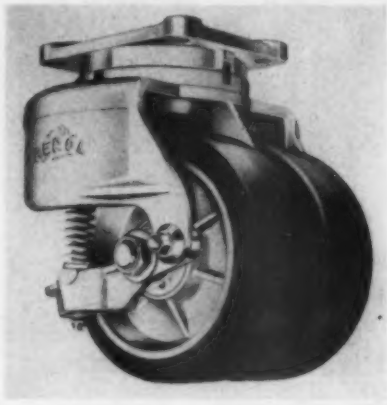
The BOSSERT Company

A Division of THE TIMKEN-DETROIT AXLE COMPANY

UTICA 1, NEW YORK

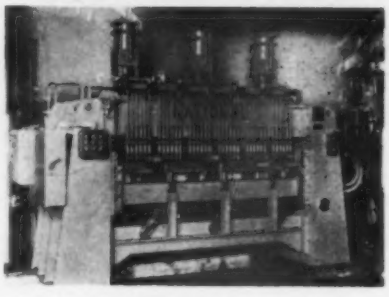
(*Continued from page* 478)

corrosion-resistant springs. Total weight of the rig is less than 50 lbs. It is positive pressure sealed against



moisture, and foreign matter cannot enter the hub. New design spring suspension carries three-fifths of the load on springs, directly under the pivot point.

Boosters Eliminate Pump Installation on Welder



Three light weight, low cost boosters made by Miller Motor Co., 2040 N. Hawthorne Ave., Melrose Park, Ill., eliminate the large hydraulic pump installation which would otherwise be necessary on the multiple gun welder shown above. They operate on ordinary plant air at 80 psi to produce 2000 psi hydraulic output. Each booster drives 12 welding guns simultaneously and holds pressure indefinitely without the constant heat generation of conventional rotating pumps. Results claimed: greater efficiency, fewer repairs, and less maintenance.

Wet Blast Machine Does Precision Cleaning

The recessed portion of the plastic mold for a pistol grip shown above was cleaned in 1½ minutes in the Liquamette, a new wet blast machine made by American Wheelabrator & Equipment Corp., 1262 S. Byrkit St., Mishawaka, Ind. The

(*Please turn to page* 482)



There's a man here you ought to know...

Your nearby Reynolds Aluminum Distributor

Reynolds is putting forth every effort to ease your aluminum-buying problems. To meet the growing demand for this vital metal, Reynolds Metals Company and other U.S. producers are rapidly expanding production. Reynolds alone will have increased production to 815 million pounds by 1953.

To meet your immediate problems the nearby Reynolds distributor is doing his level best to fill orders from present stocks.

You can also count on his assistance and guidance in selecting temporary alternate materials. He will apply all of his experience and energy to help you out. He is a man you ought to know. Now as always he will give you the kind of service you need and want.

YOUR REYNOLDS DISTRIBUTOR IS LISTED BELOW

ALABAMA
Arnold-Brown Metals & Supply Co., Birmingham
Southern States Iron Roofing Co., Birmingham

CALIFORNIA
Clingan & Fortier, Inc., Fresno, San Francisco and Vernon (Ingot also)
Richard G. Stern & Co., Los Angeles
Tay-Holbrook, Inc., San Francisco
Union Hardware & Metal Co., Los Angeles
United States Steel Supply Div., Los Angeles
Western Metal Supply Company, San Diego

COLORADO
Marsh Steel Corporation, Colorado Springs and Denver
Salt Lake Hardware Co., Grand Junction

CONNECTICUT
American Steel & Alloys Corp., Hartford

DISTRICT OF COLUMBIA
Lyon, Conklin & Co., Inc., Washington

FLORIDA
Horne-Wilson, Inc., Jacksonville, Miami, Orlando and Tampa
Southern States Iron Roofing Co., Jacksonville, Miami and Orlando

GEORGIA
Southern States Iron Roofing Co., Albany, Atlanta, Augusta and Savannah

IDAHO
Salt Lake Hardware Co., Boise

ILLINOIS
J. G. Braun Co., (Architectural only) Chicago
Silverstein & Pinsof Inc., (Ingot only) Chicago
United States Steel Supply Div., Chicago
Benjamin Wolff & Co., Chicago

INDIANA
Hubbell Metals Inc. Indianapolis

KENTUCKY
Southern States Iron Roofing Co., Louisville

LOUISIANA
Southern States Iron Roofing Co., New Orleans

MARYLAND
Cleodenin Bros., Inc., Baltimore
Lyon, Conklin & Co., Inc., Baltimore

MASSACHUSETTS
Bay State Refining Co., (Ingot only) Chicopee Falls
Arthur C. Harvey Company, Boston
Pratt & Inman, (Wire, rod, bar, structurals) Worcester

MICHIGAN
Kasle Steel Corporation, Detroit
McDonnell Bros., Inc., (Architectural only) Detroit
Milton A. Meier Co., (Ingot only) Detroit and Grand Rapids

MINNESOTA
Vincent Brass & Copper Co., Minneapolis

MISSOURI
Hubbell Metals, Inc., Kansas City and St. Louis
Marsh Steel Corporation, North Kansas City

NEW JERSEY
Edgcomb Steel Corporation, Hillside

NEW YORK
J. G. Braun Co., (Architectural only) New York
Edgcomb Steel Corporation, Hillside, N. J.
Rochester Smelting & Refining Co., (Ingot only) Rochester

NORTH CAROLINA
Southern States Iron Roofing Co., Raleigh

OHIO
The Atlas Metal Co., (Ingot only) Cleveland
G. A. Avril Smelting Corp., (Ingot only) Cincinnati
The Hamilton Steel Co., Cleveland
Mutual Manufacturing & Supply Co., Cincinnati
Verys Brothers, Inc., Columbus

OKLAHOMA
Vinson Supply Co., Tulsa

OREGON
Woodbury & Company, Coos Bay, Eugene, Medford and Portland

PENNSYLVANIA
Athos Steel Service Co., Philadelphia
Colonial Smelting & Refining Co., (Ingot only) Columbia
Levinson Steel Sales Company, Pittsburgh
Merchant & Evans Co., Philadelphia
Potts-Farrington Company, Philadelphia

SOUTH CAROLINA
Southern States Iron Roofing Co., Columbia

TENNESSEE
Southern States Iron Roofing Co., Memphis and Nashville

TEXAS
Moncrief-Lenoir Mfg. Co., Dallas, Harlingen, Houston, Lubbock, San Antonio and Temple
Vinson Supply Co., Dallas, Odessa and Snyder

UTAH
Salt Lake Hardware Co., Salt Lake City

VIRGINIA
Southern States Iron Roofing Co., Richmond

WASHINGTON
Joseph T. Ryerson & Son, Inc., Seattle and Spokane
Clingan & Fortier, Inc., Seattle

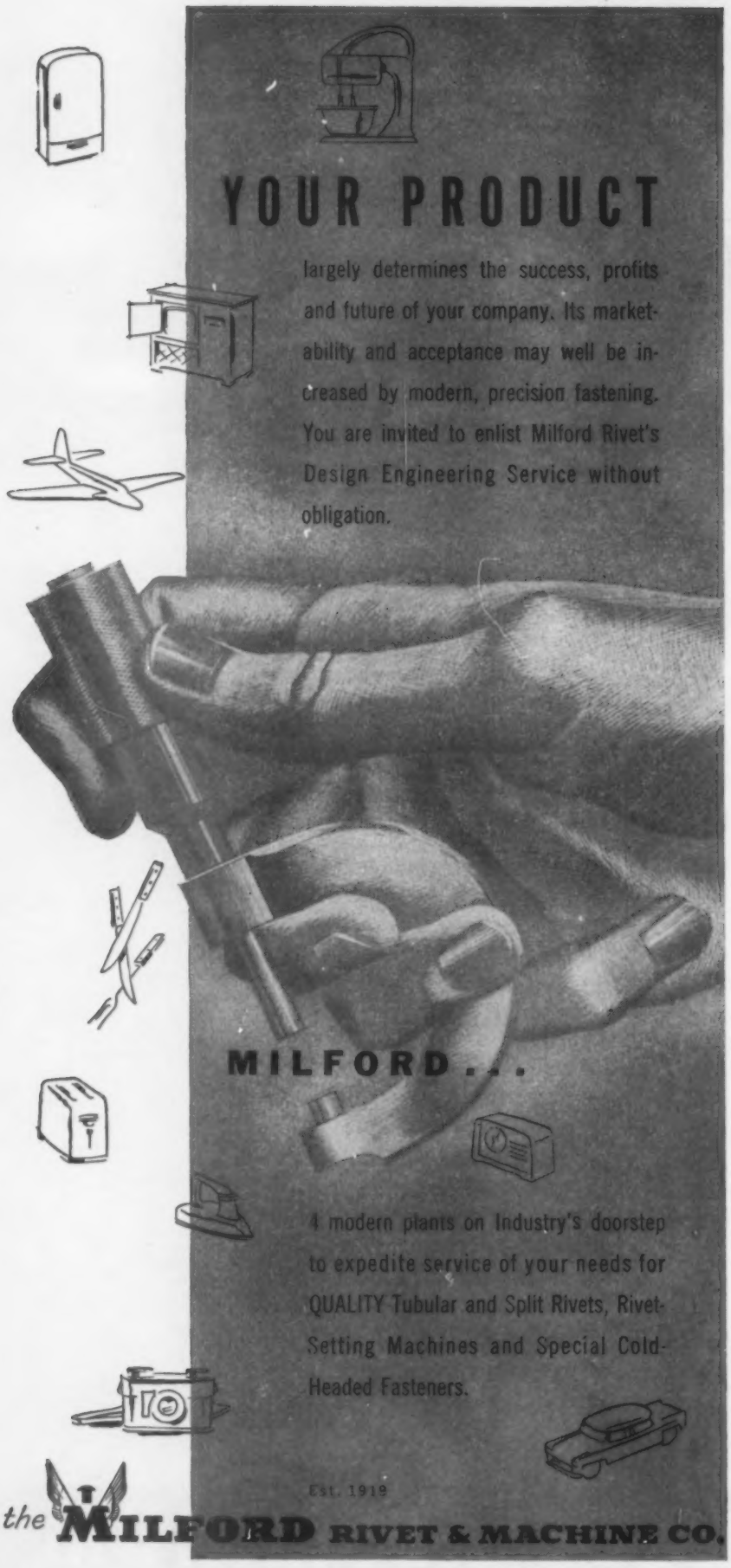
WISCONSIN
Benjamin Wolff & Co., Milwaukee

Look Under "Aluminum" in Your Classified Telephone Directory

REYNOLDS METALS

REYNOLDS ALUMINUM

MODERN DESIGN HAS ALUMINUM IN MIND



(*Continued from page* 480)

knurling was thoroughly cleaned without the sharp points either being destroyed or altered. Wet blasting is adaptable to this type of



precision cleaning, because the severity of abrasion can be so closely controlled. 1250 N.E. Liquabrasive was used as the cleaning medium. Only the recessed portion was exposed to the blast.

Portable Power Hacksaw Can Save Up to 50%



Savings of up to 50% in time and labor are claimed for a new portable power hacksaw that attaches to a ¼" or 5/16" heavy duty drill. It cuts through wood, sheet metal, heavy metal, nails, pipe, etc. Called the Tri-Saw, the tool cuts directly into floors and walls without a starting hole. Features include: balanced pistol grip design, one shot lubrication, no side torque or spin. A variety of blades for every cutting need is available. The saw is made by Tri-Saw Corp., 6611 Clayton Rd., St. Louis 17, Mo.

YOU WILL FIND NEW SUPPLY-SOURCES LISTED EVERY MONTH IN PURCHASING'S CLASSIFIED SECTION! SEE PAGE 510

Take a Sales Tip from these Men of Decision . . .



"The most valuable salesman (like the most valuable purchasing agent) is the one who regards his job as finished only when the order has been satisfactorily closed out. Without being classed as a 'customer's man,' he does his best to make sure that the customer gets the material and service he is buying. Further, he continually probes his customer's requirements to determine what additional services can be offered to improve performance and reduce costs," says K. R. Geist, Director of Purchases, Allis-Chalmers Manufacturing Company, Milwaukee, Wis.



"Because of present difficulties of supply, we purchasing agents must see to it that our swivel chairs are in good working order to face any emergency. Frequently we have to obtain alternate materials to maintain efficient plant operations, due to suppliers' inability to deliver exactly what we want when we want it. It is imperative today for salesmen to know not only their own product, but our products and our customers' problems – and, occasionally, where to find substitutes when the chips are down," says Lee Muth, Purchasing Agent, Harrisburg Steel Corporation, Harrisburg, Pa.



"Perhaps the old expression, 'To sell is to serve,' best describes the characteristics that make one salesman stand out above his brothers and competitors. The successful salesman studies your needs, and then goes about supplying them. He doesn't feel that his responsibility is over when he gets the order; instead, it has just begun. He follows through to see that the merchandise arrives in time and that it is satisfactory. Salesmen like this are always welcome," says S. Siegel, Vice President in Charge of Purchasing, Hudson Pulp & Paper Corporation, New York, N. Y.

P.A.'s need reliable sources of supply . . . and 38,500 use PURCHASING for source information

To get a steady flow of goods *out* of a plant, there must be a steady flow of materials *into* the plant. It is up to the P.A. to establish reliable sources of supply . . . to make sure no department is hindered for lack of materials.

To do this important job, the P.A. needs buying facts, and plenty of them. That's why it is sound policy for the sales manager to make sure his program gives the P.A. this basic information *two ways:* through his salesmen *and* through his advertising.

To make sure this advertising hits home, tell your story in the P.A.'s own magazine, PURCHASING. Filled with material unavailable elsewhere, this publication is read by 38,500 P.A.'s and *is a basic magazine on any industrial advertising schedule!* PURCHASING, 205 East 42nd Street, New York 17, N. Y. Offices in Chicago, Cleveland, Dallas, Los Angeles, Atlanta.

When you think of selling...think of PURCHASING

ABC NBP

PURCHASING

A CONOVER-MAST PUBLICATION

A basic magazine on any industrial advertising schedule!

Tyer's "Know-How" Solved This Problem

REQUIRED:

A Valve Diaphragm subject to reverse flexing stresses with *each* operation and capable of at least 100,000 closures.



SOLUTION:

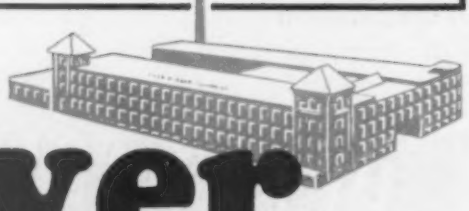
Molded-to-contour Valve Diaphragm with fabric ply insertions.

Today, Valve Diaphragms, custom molded to specifications by Tyer, are being used in applications involving corrosion, abrasion, contamination, clogging and leakage.

Adaptable to wide temperature ranges, these Valve Diaphragms can be made of natural, synthetic or special compounds, including types which do not contaminate foods or beverages.

If you have a problem involving rubber, *write today.* Let us put our "know-how" to work for you. No obligation, of course.





Tyer

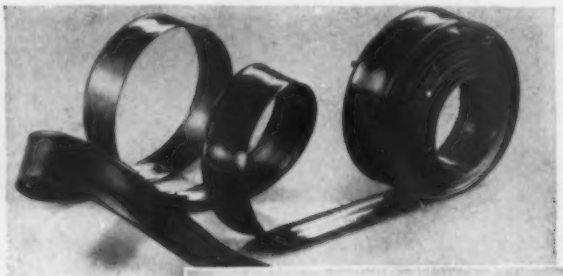
RUBBER COMPANY

The Unusual in Rubber Since 1856

ANDOVER, MASSACHUSETTS

WHEN YOU NEED

Plastic Extrusions





- Rods
- Tubes
- Shapes
- Tapes
- Strips
- Sheets
- Continuous Coatings

AND WHEN THE JOB CALLS FOR

SARAN . . . Geon . . . Polyethylene . . . Ethyl Cellulose . . . Vinylite . . . Cellulose Acetate . . . Cellulose Acetate Butyrate Kralastic

CALL ON

Pyramid Plastics

Through our highly flexible production methods we can serve you quickly in *short runs* as well as *long runs*. We can work to your specifications on all industrial needs or will be happy to counsel you on the choice of materials to best solve your extrusion problems. Outline your needs or ideas and we'll be happy to send you full information. Write today without obligation.

PYRAMID PLASTICS, INC.

554-D WEST POLK STREET,
CHICAGO 7, ILLINOIS

SHIELD *of* MODERN FIRE PROTECTION



"headquarters for the finest"

Foremost design, experienced engineering, quality materials, expert workmanship and operating superiority are all bywords of the C-O-Two Fire Equipment Company... originators of the world famous C-O-TWO Squeez-Grip Carbon Dioxide Type Fire Extinguishers.

C-O-TWO, being specialists in modern fire detecting and extinguishing equipment for many years, are constantly striving to develop new and improved types of fire protection equipment that will render highly efficient results in safe-guarding life and property from the ravages of fire.

With C-O-TWO Fire Protection Equipment, simplicity, practicability, longevity and minimum maintenance are built-in features that guarantee fast, positive action the instant fire strikes. Furthermore, extensive skill and high quality standards, together with approvals such as the Underwriters' Laboratories, Inc., Factory Mutual Laboratories, Armed Forces and Government Bureaus assure you of the finest in modern fire protection equipment.

Among the many types of up-to-date fire protection equipment manufactured by C-O-TWO, the following comprise the principal items on the market today:

- **carbon dioxide type hand and wheeled portable fire extinguishers**
- **dry chemical type hand and wheeled portable fire extinguishers**
- **carbon dioxide type hose rack and hose reel fire extinguishing units**
- **built-in high pressure carbon dioxide type fire extinguishing systems**
- **built-in low pressure carbon dioxide type fire extinguishing systems**
- **built-in smoke fire detecting systems**
- **built-in heat fire detecting systems**
- **high pressure carbon dioxide cylinder recharging equipment**

So, with current expensive delayed replacements, why not let an expert C-O-TWO Fire Protection Engineer help you now in planning modern, economical, fully approved fire protection facilities for your various properties. Our experience is at your disposal . . . no obligation of course. Get the facts today!

C-O-TWO FIRE EQUIPMENT COMPANY

NEWARK 1 • NEW JERSEY

Sales and Service in the Principal Cities of United States and Canada

Affiliated with Pyrene Manufacturing Company

MANUFACTURERS OF APPROVED FIRE PROTECTION EQUIPMENT

Squeez-Grip Carbon Dioxide Type Fire Extinguishers • Dry Chemical Type Fire Extinguishers • Built-In Smoke and Heat Fire Detecting Systems Built-In High Pressure and Low Pressure Carbon Dioxide Type Fire Extinguishing Systems

YOU'RE YEARS AHEAD WITH ARROW-HART MOTOR CONTROLS



SIZE 3—2 SPEED
RECONNECTED WINDING—3 PHASE

FOR ORIGINAL EQUIPMENT OR REPLACEMENT — ARROW•HART BRINGS YOU TOMORROW'S DESIGN TODAY!

- JUST 1/2 CONVENTIONAL SIZE AND WEIGHT
- INCREASED OPERATING EFFICIENCY
- FULL PROTECTION TO MACHINERY, OPERATOR
- LONGER LIFE
- SIMPLIFIED, SAFER WIRING
- ALL TYPES OF HOUSINGS
- SIZES 0-1-2-3-4 FOR STANDARD, MULTI-SPEED, AND REVERSING MOTORS

Today's production equipment must be geared to tomorrow's increased production demands. More and more, alert buyers everywhere are realizing that for every motor control requirement — BEST EQUIPPED IS ARROW-HART EQUIPPED. Definitely the design of tomorrow, A-H controls bring you today more working advantages than any others on the market. Why not write now for more complete information.



Call ARROW-HART BRANCH WAREHOUSES FOR SERVICE

CITY	ADDRESS	PHONE
Boston 15, Massachusetts	1032 Commonwealth Ave.	Beacon 2-8850
Charlotte, North Carolina	813 West Trade Street	6-4766
Chicago 6, Illinois	551 West Monroe Street	State 2-4727
Cincinnati 2, Ohio	347 West Fourth Street	Garfield 6710
Cleveland 13, Ohio	2000 West 14th Street	Cherry 1-3911
Dallas 1, Texas	3200 Main Street	Sterling 3254
Detroit 1, Michigan	3126 Cass Avenue	Temple 3-0751
Indianapolis, Indiana	3604 West 16th Street	Franklin 6251
Los Angeles 13, California	405 East 3rd Street	Michigan 8048
New York 16, N. Y.	306 East 39th Street	Murray Hill 4-0767
Philadelphia 4, Pennsylvania	3201 Arch Street	Evergreen 6-7742
Pittsburgh 12, Pennsylvania	102 West North Avenue	Cedar 1-7416
San Francisco 3, California	1345 Howard Street	Market 1-2112
Syracuse 2, New York	201 East Jefferson Street	2-3645

THE ARROW-HART & HEGEMAN ELECTRIC CO.
INDUSTRIAL CONTROL DIVISION
2505 Hawthorn St., Hartford 6, Conn. — Phone 5-1144

CENTRALIZED BUYING SAVES CHICAGO $900,000 A YEAR

Annual savings of $900,000 for taxpayers of the City of Chicago were attributed to the installation of a centralized purchasing department, said John F. Ward, city purchasing agent, speaking recently at a meeting of the City Club.

"It is felt that in the last four years the city can point specifically to savings of more than 3½ million dollars, and the potential savings would amount, roughly, to about 8 million dollars," Mr. Ward said.

"These potential savings would accrue thru better business relations with vendors who formerly failed or refused to bid on the city's requirements."

The job of setting up the modernized procurement system began four years ago and was intended to take six years, Mr. Ward said. The purchasing end of this installation, he said, has been completed. He estimated two years will be required to complete the other phase of the organization work—setting up "warehousing and mechanization of inventory control."

SHEFFIELD ANNOUNCES NEW PRECISION GAGE



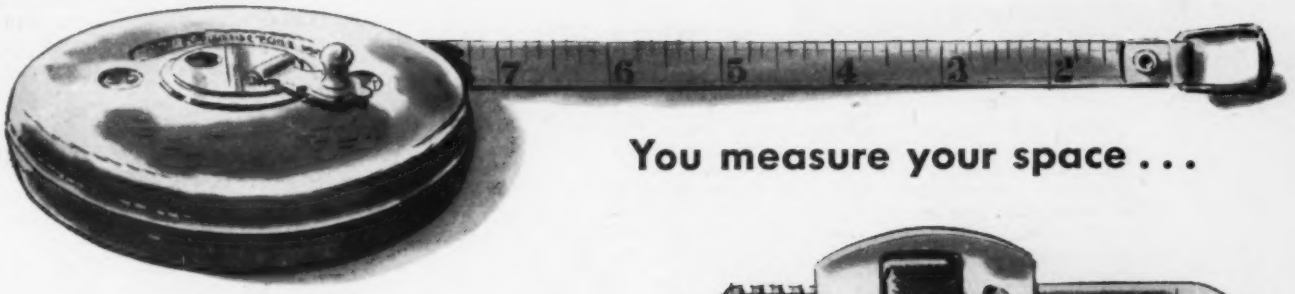
Jet turbine blades can now be 100% inspected for contour, thickness, tilt, and blade angle, at 18 to 26 or more points simultaneously, by a new multiple dimension Precisionaire instrument with an "Airechart" developed by The Sheffield Corporation of Dayton, Ohio. Each gage can take the place of up to 11 conventional type gages, thus releasing as many as 20 men on a two-shift per day basis for other defense work.

No expensive minimum or maximum master gages are required for setting the jet blade contour measuring fixture. A selected, carefully calibrated turbine blade is used as a mean master. Gage block buildups are used to properly locate the gaging head mounting plates for the upper, middle and lower calibrated points of check. The gage heads are then clamped into proper position and feeler gages are used to set up the Precisionaire base instrument, not for the calibrated blade, but for a theoretical

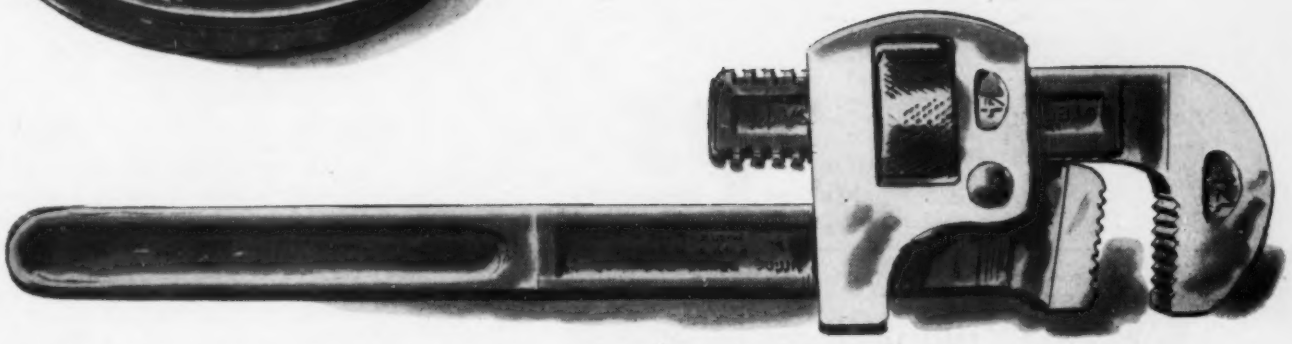
(*Please turn to page* 488)

NEW! NOW!

SIX PRE-PACKAGED CO_2 FIRE EXTINGUISHING SYSTEMS TO FIT YOUR SPECIFIC NEEDS!



You measure your space . . .



anybody who can cut pipe can install them

Here's inexpensive built-in carbon dioxide fire protection against normal flammable liquid and similar industrial hazards.

The new Kidde Standard Pak is a ready-made, pre-engineered fire extinguishing "package" for volumes up to 6,000 cubic feet. Anyone who can cut pipe can install it. Each kit contains dependable Kidde rate-of-rise heat detectors, efficient Kidde Multi-jet nozzles, and automatic discharge heads. Paks are supplied with or without pipe and fittings. Optional accessories include pressure trips and switches, remote controls, sirens, gongs.

A choice of six sizes assures you of the right package for your particular requirements. For complete information send us coupon below.

Please send me details on the New Kidde Packaged Fire Extinguishing System

NAME_____

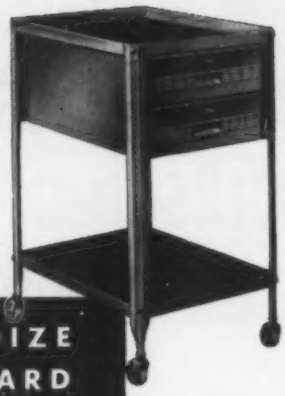
FIRM NAME_____

ADDRESS_____

CITY_____ ZONE____ STATE_____

Kidde

Walter Kidde & Company, Inc.
447 Main Street, Belleville 9, N. J.
Walter Kidde & Company of Canada, Ltd., Montreal, P. Q.



STANDARDIZE ON STANDARD HALLOWELL® CARRY-TOOL

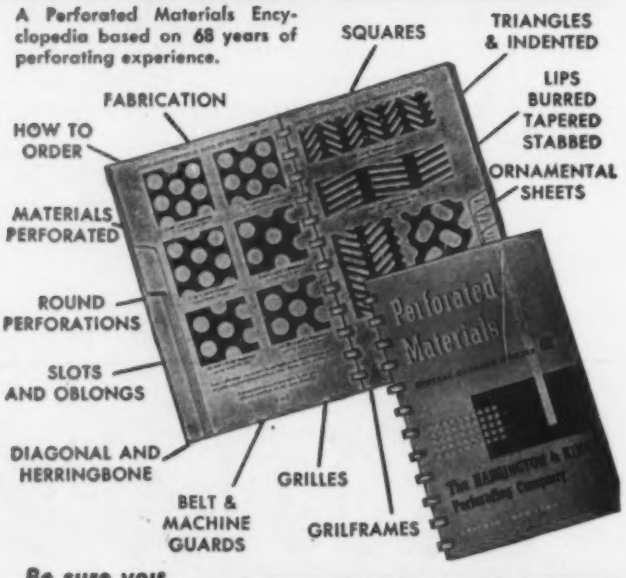
use it anywhere

It's the handiest, most convenient carrier in the shop. Use it on assembly lines, at machines, in the toolroom. Use it for inspection, stockroom, maintenance, and mounting small tools. Roller bearing drawers with padlock attachments are standard equipment. Write for descriptive literature. STANDARD PRESSED STEEL CO., Jenkintown 31, Pennsylvania.

HALLOWELL SHOP EQUIPMENT DIVISION SPS JENKINTOWN PENNSYLVANIA

What is Perforated Material?
Where to use Perforated Material
Why 'H & K Perforated Material?

A Perforated Materials Encyclopedia based on 68 years of perforating experience.



Be sure you have H & K General Catalog 62 —Write for it

The Harrington & King PERFORATING CO.

5678 Fillmore St., Chicago 44, Ill.
114 Liberty St., New York 6, N. Y.

(*Continued from page* 486)

perfect blade. Positions of the floats will then indicate how much the blade being checked varies with a theoretically perfect blade.

A feature of great value is the complete flexibility and adjustability to accommodate changes of design, any desired tolerance and a great variety of jet blades without modification. Blades can vary or be changed in width, height or contour by more than an inch and still be accommodated by the gaging fixture. Interchangeable work holders will be required should the root form dimensions change. Adaptations of this fixture can be made for fewer, or more, or different, points of check, for locating the blade at different points, for blades of entirely different shapes—and for completely different types of parts where the same principle can be applied.

WARNING ON NEW WIREBOUND BOX SPECIFICATIONS

The Wirebound Box Manufacturers Association is calling defense contractors' attention to the fact that MIL-B-107A specification for wirebound boxes for overseas shipment of defense goods has superseded and supplanted the old JAN-B-107 specification.

Purchasing agents, packaging engineers, and shipping executives are being cautioned that JAN-B-107 wirebound shipping containers for overseas shipment are no longer in keeping with government requirements, regardless of the wording of government contracts or bid invitations.

The Association's headquarters in Chicago pointed out that some government procurement officers throughout the country continue to stipulate JAN-B-107 boxes, apparently not yet aware that the new MIL-B-107A specification became effective last September 1 and replaced the older specification.

L. S. Beale, secretary of the association, pointed out that government invitations to bid on defense commodities almost invariably contain this statement:

"The following specifications, of the issue in effect on the date of invitation for bids, form a part of this specification."

Thus, Beale said, those bidding for contracts that stipulate wirebound boxes for overseas packing made in accordance with the JAN-B-107 specification should compute their packing costs upon the basis of wirebound boxes made in accordance with the MIL-B-107A specification, being the "issue in effect."

The MIL-B-107A specification leaves the construction of some sizes or types of wirebound boxes practically unchanged from what they were under the JAN-B-107 specification, but result in many others being constructed more strongly than before and even better able to absorb and withstand the hard usage and abuse often encountered in export shipment.

(*Please turn to page* 490)



FOREMOST IN
SCIENTIFIC DEVELOPMENT

IN THE REALM OF FORGING DESIGN AND THE DEVELOPMENT OF PROPER GRAIN-FLOW, WYMAN-GORDON HAS ORIGINATED MANY FORGING DESIGNS WHICH AT THE TIME OF THEIR DEVELOPMENT WERE CONSIDERED IMPOSSIBLE TO PRODUCE BY FORGING.

WYMAN-GORDON

ESTABLISHED 1883

FORGINGS OF ALUMINUM • MAGNESIUM • STEEL

WORCESTER, MASSACHUSETTS

HARVEY, ILLINOIS DETROIT, MICHIGAN



Portrait of a Man Who Doesn't Worry About Springs

(Circa '51-'52)

He relies on John Evans' Sons to

Design • Produce • Deliver

the right spring for the right application

WRITE FOR SPECIFICATION SHEET FOR EASY ORDERING

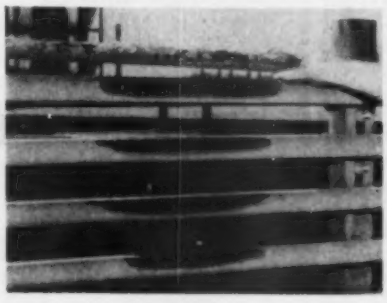
JOHN EVANS' SONS, INC.

506 North 13th Street

Philadelphia 23, Pa.

NEW PRODUCT COMBATS COSTLY CORROSION

Electrunite "Dekoron-Coated" E.M.T. is a new development which has reduced replacement costs on many wiring raceway installations where extremely corrosive conditions exist. It is a product of Steel & Tubes Divn., Republic Steel Corp., Cleveland, O. No overall costs or savings are available because neither maintenance nor replacement has been necessary on any "Dekoron-Coated" E.M.T. raceway since original installations were made over two years ago. The Dekoron coated Electrical Metallic Tubing installation will ultimately save the labor of replacement, painting and maintenance, any one a considerable item of expenditure where corrosion necessitates frequent replacement.



The accompanying unretouched photograph shows installation of this new raceway as well as a view of the standard galvanized heavy wall conduit which was replaced. This application involves a manufacturer of chemicals. The corrosive action of fumes, gases, steam and other materials required constant maintenance and replacement of this wiring system. Electrunite "Dekoron-Coated" E. M. T. has eliminated this costly replacement and "down-time" of costly equipment.

The picture also shows the corrosive film deposited on the conduit which would attack the galvanized conduit but can be wiped from the polyethylene coating with a damp cloth leaving the coating and conduit as good as new.

* * *

ORLON WORK CLOTHES HAVE EXTRA LONG LIFE

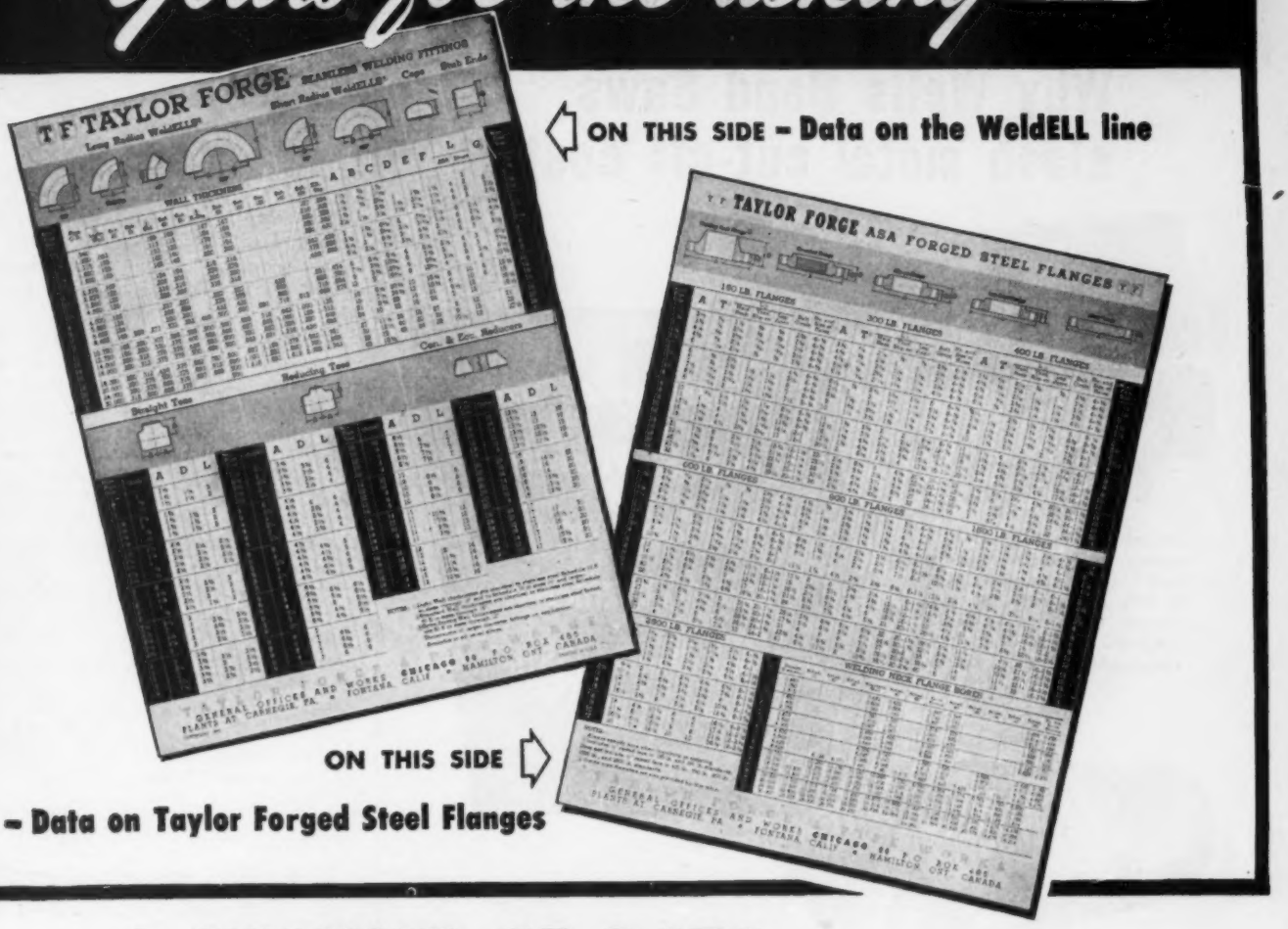
Rigorous tests under actual working conditions prove that work uniforms made of Orlon last up to 15 times as long as work clothes made from cotton and wool, according to David A. Travis, president of Travis Fabrics, Inc., New York City, who weave the material for the acid and chemical resistant garments.

Now available for the first time on large commercial scale, work clothes of Orlon, the Du Pont acrylic fiber, are manufactured by Worklon, Inc., 253 W. 28 St., New York, N. Y. of a fabric specifically engineered by Travis Fabrics to take hard wear and stand up under the worst conditions work clothes are likely to meet.

To conduct the tests, the uniforms of the Travis fabric were placed in plants

(*Please turn to page* 492)

Yours for the asking—



ON THIS SIDE – Data on the WeldELL line

ON THIS SIDE – Data on Taylor Forged Steel Flanges

A VOLUME OF DATA

. . . covering welding fittings and forged steel flanges . . .

ON A SINGLE SHEET

Here is just about the handiest tool ever devised for the pipe designer. Data on welding fittings and flanges that otherwise could be found only by plowing through many catalog pages and tables have been ingeniously condensed on the two sides of the durable letter-size card illustrated above.

One side covers the broad WeldELL line of Taylor Forge welding fittings. For every nominal pipe size, ½" through 30", it shows the wall thickness for every weight of every fitting in every available material. It also shows all required dimensions of all types of fittings.

The other side covers the world's most complete line of forged steel flanges. For every nominal pipe size, ½" through 24", it gives all essential dimensional and bolting data for all types of flanges in all weights. A particularly useful table (see reproduction) is that showing welding neck flange bores which enables you to determine the I.D. of any nominal pipe size without separate calculation. Thus the sheet gives you O.D. and I.D. of any weight of pipe.

The card is varnished to make it stand the steady usage you are certain to give it. To obtain your copy see your Taylor Forge distributor or **MAIL THE COUPON.**

T F

TAYLOR FORGE

TAYLOR FORGE & PIPE WORKS

General Offices and Works: P. O. Box 485, Chicago 90, Ill.

Offices in all principal cities.

Plants at: Carnegie, Pa.; Fontana, Calif.; Hamilton, Ont., Canada

Please send me one of your fitting and flange sheets: 514-1251

NAME_____

POSITION_____

COMPANY_____

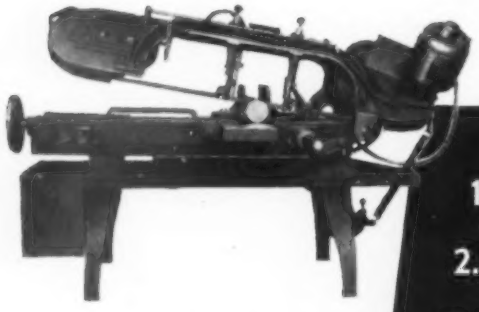
STREET ADDRESS_____

CITY_____ ZONE____ STATE_____

517-0552 Mail to Taylor Forge & Pipe Works, P. O. Box 485, Chicago 90, Ill.

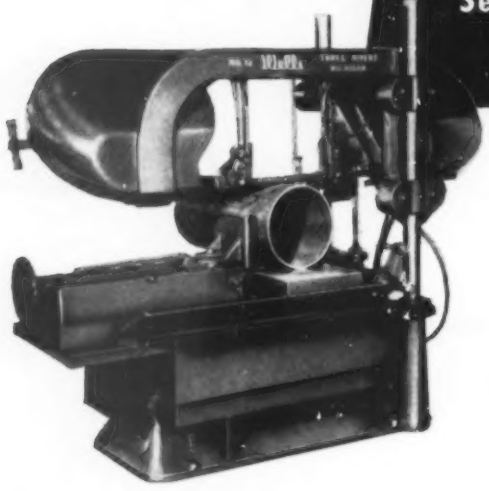
5 BIG REASONS

Why Wells Band Saws slash metal cut-off costs



Above is the Wells No. 8, shown with wet cutting system. It offers a capacity of 8" x 16", rectangular, 8" dia., rounds. The No. 5 is similar but has a capacity of 5" x 10" rectangular, 5" dia., rounds.

1. Fast, Accurate Action
2. High Job Productivity
3. Low Operating Cost
4. Real Blade Efficiency
5. Long, Dependable Service



Left is the Wells No. 12 which features an automatic cutting cycle and controlled blade pressure. It has a capacity of 12" x 16", rectangular, 12¾" dia., rounds. Die block capacity 12¾" deep, 16" wide, 18" clearance bed to blade.

YOU are always ahead when you handle your cut-off jobs on "Wellsaws." The Wells Band Sawing method will not only reduce your operating costs, but also give you greater job efficiency — better cuts, and real dependable service. There is a size and type for every need and every budget. Capacities range from 3½" x 6" to 48" x 48". All models are built for full duty and backed by over 25 years of band saw manufacturing experience.

Your Wells Distributor will be pleased to give you full information on models suited to your needs — or write for descriptive literature.

Wellsaws

Wells

Products by Wells are Practical

METAL CUTTING BAND SAWS

WELLS MANUFACTURING CORPORATION
2400 JACKSON AVE., THREE RIVERS, MICH.

(*Continued from page* 490)

making chemicals, electronic equipment, pharmaceuticals, bakery goods, cameras, metal finishing products and range finders. Each firm studied the way the garments held up under the rigors of its particular operation.

Results proved definitely that the man-made fabric stands up under conditions that deteriorate cotton and wool. The uniforms were found remarkably resistant to mineral acids, fumes, chemicals, thermal change, microorganisms, bleaching agents, moisture and abrasion. One type of the new Travis fabric, designed especially for plants engaged in precision work, has proved completely lint-free.

A uniform of the Travis fabric made from Orlon will outlive six of a conventional material in many plants, it is claimed. They were reported to have a high flex life and good recovery from wrinkling. Orlon is easily washed and shrinkage and stretch resistant, drying quickly and requiring little or no ironing. It has a fine hand, and is attractive in appearance when made into work clothes.

An important feature established by the tests is that uniforms made of Orlon not only wear well but are comfortable. Because of the shape of acrylic fibers when woven into fabric, millions of trapped air channels exist, giving it absorbency and insulation properties. Consequently, Orlon feels dry next to the skin and has warmth without weight.

PLASTIC PIPE ELIMINATES CORROSION IN OIL LINE



The problem of corrosion was eliminated and the danger of stoppage due to accumulation of paraffin was ended by using the 4" plastic pipe shown above to carry sour crude oil from the producing well to the separation tanks. The easily handled pipe, made of Tenite, has a smooth inner surface to which paraffin will not adhere.

The pipe, which comes in 20' lengths, has been joined together in a continuous length by means of slip-sleeve couplings and solvent cement. The joining was done on the bank of the ditch by a crew of three men.

(*Please turn to page* 494)



SERVICE HOURS
...*not Footage*

The True Yardstick of Air Hose Value

When buying air hose, your thinking should not be in terms of footage-per-dollar but rather in terms of service hours.

Experience tells you that the hose which is built with an *extra* measure of strength, flexibility, damage resistance and safety is surely your soundest investment.

This is true of *every* BWH Air Hose. Each has been specifically developed, tested and field-proven to give maximum long, trouble-free life in its job.

Get in touch with your BWH distributor — *today*.

BWH
DEPENDABLE RUGGEDNESS

BOSTON WOVEN HOSE & RUBBER COMPANY

Distributors in all Principal Cities

PLANT: CAMBRIDGE, MASS.
P.O. BOX 1071, BOSTON 3, MASS., U.S.A.
Warehouse Stock, 111 N. Canal St., Chicago, Ill.



CONCORD AIR — An extra quality, exceptionally rugged hose for toughest use on air drill and pneumatic service in mines, quarries and construction jobs. Non-porous tube resists heat and oil. High tensile cotton yarn braid reinforced carcass. Tough grey cover resists cutting, gouging, abrasion. 7 sizes from ½" 2-braid through 2" 3-braid. 200 to 300 lbs. working pressure. Maximum length 50'.



BAY STATE AIR DRILL — For heavy construction work in mines, quarries, tunnels and wherever large size hose is required for long service. Smooth black tube resists heat and oil. Carcass of strong, rubber-impregnated multiple ply woven duck. Rugged, heavy-gauge red rubber cover resists severe weather extremes, cutting, abrasion. 9 sizes stocked from ½" to 4". Working pressures from 150 to 225 lbs. Max. length 50'.



AUROCHS AIR — For portable air compressors, jackhammers, rugged industrial and construction work. Smooth, black, non-porous tube resists heat and oil. Carcass: multiple ply, rubber-impregnated, rugged woven fabric. Tough black cover resists weather and abrasion. Stocked sizes: ½", ¾", 1". 200 lbs. working pressure. Maximum length 50'.



VIM AIR — For general industrial use, on compressors and pneumatic tools. Black tube resists oil and heat. Husky cotton yarn braids. Smooth, red cover resists weather, abrasion. 8 sizes stocked, ¼" 2-braid to 1" 3-braid. Working pressures: 150 to 225 lbs. Maximum length 500'.



BULL DOG VARI-PURPOSE AIR — For a variety of jobs including handling of air, water, oil, gasoline, kerosene (not for paints, lacquers, lacquer-solvents). Black, synthetic tube resists oil and heat. Carcass is braided rayon cord, high strength, super flexible. Smooth, brown, tough synthetic cover resists oil, abrasion, sunlight. 11 sizes stocked from 3/16" one-braid to 1" 2-braid. Working pressures: 200 to 300 lbs. Maximum length approximately 500'.

LIKE AN
ATOM-IC
EXPLOSION

Just 1/32" (pinhole size) faucet leak
MUSHROOMS into ATOMIC WASTE
of approximately 95,000 gallons
of water yearly—costing:
$24.14
@ $1.90 per M cubic feet

If a hot water faucet, then (actual) FUEL WASTED heating 95,000 gallons costs approximately:
$88.91 if coal (8879 lbs.)
$91.08 if oil (792 gals.)
$84.41 if gas (84,411 cu. ft.)
Above figures authenticated by Hackensack Water Co. and American Gas Association.

STOP this needless WASTE during today's MATERIAL and MANPOWER shortages with 'SEXAUER' "Easy-Tites" that outwear ordinary faucet washers 6-to-1, thus SAVING labor on 5 REPEAT repairs, PLUS water and fuel, while prolonging the life of SCARCE fixtures.

PAT'D.
"EASY-TITE"
FAUCET WASHERS



...a modern laboratory triumph, age compounded from du PONT NEOPRENE (tested up to 300° F.) instead of rubber—to withstand DESTRUCTIVE HEAT common in present-day superheating water systems—that formerly broke down washer's structure.

Built like a tire with fabric re-inforcement they resist the grinding, closing squeeze that SPLIT and MUSH ordinary washers out of shape...causing LEAKS.

Through combining NEOPRENE and FABRIC RE-INFORCEMENT they OUTWEAR ordinary washers 6-to-1 on hot or cold FAUCETS—thus you slash water, fuel and labor costs.

THE NEW 'SEXAUER' CATALOG



Edition G, just out, pictures over 2500 TRIPLE-WEAR plumbing REPAIR parts and Pat'd. Precision Tools. It's today's accepted buying guide for discriminating purchasing and maintenance personnel among thousands of top PLANTS, INSTITUTIONS and GOVT. AGENCIES that rely on SEXAUER repair materials. *Send for your copy today!*

Then too, there's a SEXAUER TECHNICIAN within quick call from coast-to-coast, who offers a special SURVEY service that sets up a schedule of the exact replacement parts required for your particular plumbing fixture regardless of make or age and *without obligation.*

A postcard will bring him and your NEW Catalog promptly.

J. A. SEXAUER MFG. CO., INC., Dept. AP 32
2503-05 Third Avenue, New York 51.
as advertised in THE SATURDAY EVENING POST

SEXAUER
WORLD'S LEADING SPECIALISTS IN PLUMBING AND HEATING REPAIR PARTS

(*Continued from page* 492)

The pipe is extruded by Crescent Plastics, Inc., Evansville, Ill. Tenite is produced by Tennessee Eastman Co., Division of Eastman Kodak Co., Kingsport, Tenn.

DISPOSABLE, ADJUSTABLE PAPER PALLET



Creating considerable interest at the A.M.A. Packaging Show in Atlantic City was a disposable, adjustable paper pallet presented by Gaylord Container Corporation. Four different sizes of containers can be handled with the simple type pallet shown here with nine half-slotted legs, load capacity up to 8,000 lbs. With nine corrugated legs, capacity is increased to 14,000 lbs.

COMING TO
CLEVELAND
NEW
VISIT THE HOLLENDEN...
COMPLETELY REDECORATED!

★ 1000 ROOMS WITH BATH
★ RADIO IN EVERY ROOM
★ SIX FINE RESTAURANTS
★ CENTRAL DOWNTOWN LOCATION
★ GARAGE ATTACHED

HOTEL
HOLLENDEN

Robert P. Joyce, General Manager



Home of the famous Vogue Room

DARNELL
Casters & Wheels



Darnell Casters and Wheels are pre-tested for efficiency and durability—you are assured a long life of satisfactory service.

Free
MANUAL

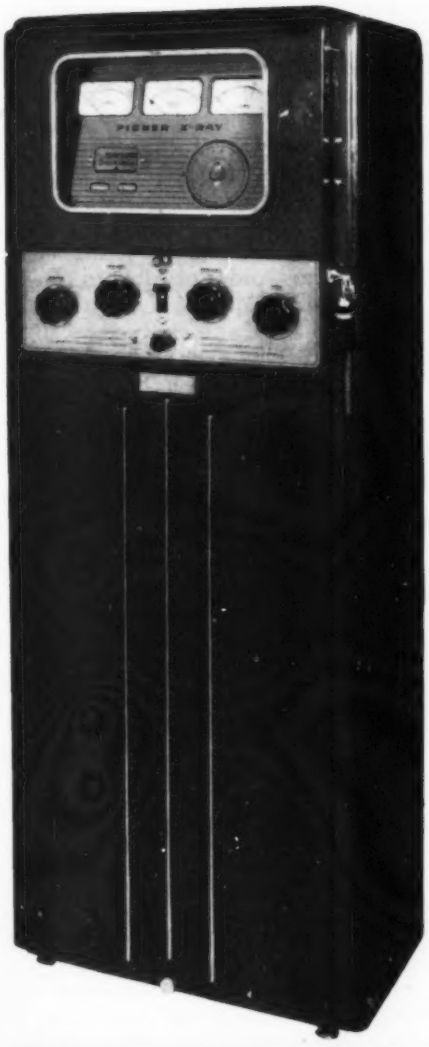


DARNELL CORP. LTD.
LONG BEACH 4, CALIFORNIA

60 WALKER ST., NEW YORK 13, N.Y.
36 N. CLINTON, CHICAGO 6, ILL.

Picker X-Ray Corporation

"For accurate duplication of X-ray densities their resistors must be stable"







says O. N. Jones, The Ambos-Jones Company, Cleveland, Ohio, representative for Ward Leonard Electric Company

Duplicating densities of precise radiographs over prolonged periods demands exacting control of milliamperage through the X-ray tube. This means filament temperature must be accurately set.

That is why the absolute balance of thermal characteristics of Ward Leonard resistors is of utmost importance to the Picker X-Ray Corporation.

The only way to be sure that all resistor components will react the same to changes in temperature is to balance their thermal characteristics. In this way, there is no loosening, no failure, due to unbalance. Heat affects all parts the same way, which, in turn, means longer life, *stable performance.*

This stability in the presence of thermal shock is one of the major reasons the Picker X-Ray Corporation uses Ward Leonard STRIPOHM resistors in their V-12, 200 milliampere, 100 PKV X-ray controls.

The performance of VITROHM wirewound resistors, rheostats, and other electric controls under the severest operating conditions is proof of their complete dependability.

For correct, accurate current control, specify Ward Leonard VITROHM Resistors.

DISTRICT OFFICES AND REPRESENTATIVES

Atlanta 5, Georgia	C. B. Rogers and Associates
Baltimore 18, Md.	Durling Electric Co.
Charlotte 1, N. C.	James L. Highsmith & Co.
Chicago 4, Illinois	Ward Leonard Electric Co.
Cincinnati 2, Ohio	Sheldon Storer and Assoc.
Cleveland 14, Ohio	The Ambos-Jones Co.
Corpus Christi, Texas	Brance-Krachy Co., Inc.
Denver 2, Colorado	Mark G. Mueller
Detroit 21, Michigan	Jesse W. Eakins Co.
Hartford 6, Conn.	Ward Leonard Electric Co.
Houston 1, Texas	Brance-Krachy Co., Inc.
Kansas City 2, Mo.	Maury E. Bettis Co.
Knoxville, Tennessee	John G. Pettyjohn
Los Angeles 13, Calif.	Ward Leonard Electric Co.
Memphis 3, Tenn.	E. E. Torkell
Minneapolis 5, Minn.	Marvin H. Kirkeby
Newark 2, N. J.	Ward Leonard Electric Co.
New Orleans 13, La.	Electron Engineering Co.
Philadelphia 2, Pa.	Ward Leonard Electric Co.
Pittsburgh 16, Pa.	W. A. Bittner
Roanoke, Virginia	Lynn H. Morris
Rochester 7, N. Y.	Ward Leonard Electric Co.
St. Louis 10, Mo.	Ward Leonard Electric Co.
Salt Lake City 1, Utah	Leonard M. Slusser
San Antonio, Texas	Brance-Krachy Co., Inc.
San Francisco 3, Calif.	L. F. Church Co.
Seattle 4, Wash.	Northwestern Agencies, Inc.
Tucson, Arizona	Central Station Equipment Co.
Washington 5, D. C.	Federal Engineering Co., Inc.

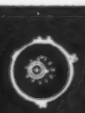
CANADA

Edmonton, Alta.	D. M. Fraser, Ltd.
Halifax, N. S.	D. M. Fraser, Ltd.
Montreal 25, P. Q.	D. M. Fraser, Ltd.
Toronto 1, Ont.	D. M. Fraser, Ltd.
Vancouver, B. C.	D. M. Fraser, Ltd.
Winnipeg, Man.	D. M. Fraser, Ltd.

EXPORT

New York 4, N. Y.	Ad. Auriema, Inc.

WARD LEONARD ELECTRIC COMPANY
MOUNT VERNON, NEW YORK

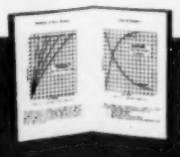

RHEOSTATS


RELAYS


MOTOR CONTROLS


CHROMASTER

Result-Engineered Controls Since 1892


Ward Leonard's complete engineering textbook, "Handbook of Power Resistors," $3. per copy.

wise buyers know
it pays to go to
"SAFETY" FIRST!

Blue Devil
SOCKET SCREW PRODUCTS



for all socket screw products

★ a complete line
★ an exclusive line
★ a quality line



Safety Socket Screw's entire design and manufacturing facilities are devoted exclusively to socket screw products. Here's a concentrated single-mindedness that assures you always of the absolute finest in socket screws plus the widest possible selection and fastest deliveries. For every application—whether it's for huge, rugged machinery or delicate precision instruments — insist on "Safety-first" at your Industrial Distributor.



specify
SAFETY SOCKET SCREWS
safe, sure, speedy!

SOLD THROUGH AUTHORIZED INDUSTRIAL DISTRIBUTORS

SAFETY SOCKET SCREW COMPANY
6502 Avondale Avenue, Chicago 31, Illinois

Cost Reductions By PAs

(*Continued from page* 122)

creases on a comprehensive list of long delivery major equipment for expansion programs so as to tie the price increase formula to lower base prices and recommended the formula basis rather than the price in effect as of date of shipment with limit on change basis. In response to comment that likely the advances of indices would match actual price advances attention was called that under the escalator formula, 30% of the contract would be firm. The outcome was that the action taken at the time on the equipment purchased under the escalator formula tied to Department of Labor indices and later purchases under the same and similar formula resulted in costs many thousands of dollars lower than had the price in effect as of date of shipment with prescribed percentage limit on price increase been selected.

Repetitive Savings

Many of the outstanding savings that can be attributed in part to sound study and practices of purchasing are repetitive savings and result from close coordination of thought of several interested departments.

In our area, due to soil conditions, durability and methods of installation play important parts in decisions as to selection of anchor plates used in anchoring guy wires for poles and other structures. A malleable iron anchor plate was for some years considered preferable in view of high resistant qualities and ease of installation. As no malleable iron was available in our section for making these plates, the cost was comparatively high and the Purchasing Department urged operating and engineering personnel to consider substitutes.

Through cooperation of key operating and engineering personnel and with the help of a progressive metal fabricator a galvanized steel anchor plate at much lower unit cost and suitable in other respects was developed. The rate of usage is high and annual savings are substantial.

Sometime ago, a diver employed at one of the hydro plants wanted a light for underwater work and gave the name of a Boston firm. We phoned and found the light cost $75.00 f.o.b. Boston, air express to be added.

The buyer remembered seeing a surplus Navy battle lantern at a Birmingham store. Since neither the

(*Please turn to page* 498)

make the most of the ALUMINUM you buy...

Call your ALCOA DISTRIBUTOR for FREE "How To Do It" series of booklets and films on Aluminum!

You can get basic facts on aluminum fabrication from your Alcoa Distributor. Alcoa's 64 years of aluminum knowledge is available to you in a "How To Do It" series of booklets and films. For these FREE manufacturing aids, just call your nearest Alcoa Distributor listed under "Aluminum" in your classified section. This is just part of the aluminum service offered to you by our national network of distributors.

ALUMINUM COMPANY OF AMERICA
1966E Gulf Bldg. · Pittsburgh 19, Pa.

4 Booklets

(Free if requested on business letterhead)

Welding & Brazing	130 pages
Aluminum & Its Alloys	168 pages
Alcoa Aluminum in Automatic Screw Machines	95 pages
Riveting Alcoa Aluminum	56 pages

11 Films

(From Alcoa's film lending library)

Spinning	16 minutes
Drawing, Stretching, Stamping	22 minutes
Blanking & Piercing	15 minutes
Resistance Welding	12 minutes
Arc Welding	10 minutes
Torch Welding	17 minutes
Tube & Shape Bending	13 minutes
Brazing	7 minutes
Riveting	26 minutes
Sheet Metal Practice	20 minutes
Machining	32 minutes

(All films are 16 mm, with sound. All are black and white.)



NOW 6:30 P.M. EDST every Sunday — "SEE IT NOW" with Edward R. Murrow . . . brings the world to your armchair . . . CBS Television

ALABAMA
Birmingham—Hinkle Supply Co.

CALIFORNIA
Los Angeles—Ducommun Metals & Supply Co.
Pacific Metals Company, Ltd.
San Francisco—Pacific Metals Company, Ltd.

COLORADO
Denver—Metal Goods Corporation

CONNECTICUT
Milford—Edgcomb Steel of New England, Inc.

FLORIDA
Jacksonville—Florida Metals, Inc.
Miami (Hialeah)—Florida Metals, Inc.
Tampa—Florida Metals, Inc.

GEORGIA
Atlanta—J. M. Tull Metal & Supply Co., Inc.

ILLINOIS
Chicago—Central Steel & Wire Company
Steel Sales Corporation

LOUISIANA
New Orleans—Metal Goods Corporation

MARYLAND
Baltimore—Whitehead Metal Products Co., Inc.

MASSACHUSETTS
Boston (Cambridge)—Whitehead Metal Products Co., Inc.
Nashua (New Hampshire)—Edgcomb Steel of New England, Inc.

MICHIGAN
Detroit—Central Steel & Wire Co.
Steel Sales Corporation

MINNESOTA
Minneapolis—Steel Sales Corporation

MISSOURI
Kansas City, North—Metal Goods Corporation
St. Louis—Metal Goods Corporation

NEW JERSEY
Harrison—Whitehead Metal Products Co., Inc.

NEW YORK
Buffalo—Brace-Mueller-Huntley, Inc.
Whitehead Metal Products Co., Inc.
New York—Whitehead Metal Products Co., Inc.
Rochester—Brace-Mueller-Huntley, Inc.
Syracuse—Brace-Mueller-Huntley, Inc.
Whitehead Metal Products Co., Inc.

NORTH CAROLINA
Charlotte—Edgcomb Steel Company

OHIO
Cincinnati—Williams & Company, Inc.
Cleveland—Williams & Company, Inc.
Columbus—Williams & Company, Inc.
Toledo—Williams & Company, Inc.

OKLAHOMA
Tulsa—Metal Goods Corporation

OREGON
Portland—Pacific Metal Company

PENNSYLVANIA
Philadelphia—Edgcomb Steel Company
Whitehead Metal Products Co., Inc.
Pittsburgh—Williams & Company, Inc.

TEXAS
Dallas—Metal Goods Corporation
Houston—Metal Goods Corporation

WASHINGTON
Seattle—Pacific Metal Company

WISCONSIN
Milwaukee—Steel Sales Corporation

ALCOA ALUMINUM ®

YOUR ALCOA ALUMINUM DISTRIBUTOR HAS THE TECHNICAL HELPS YOU NEED



When you have a taping problem



—ask your Orange Core dealer



Your Orange Core Gummed Tape dealer is an expert on the sealing of cartons and parcels; his help to you is free.

"Service" is the first name of your Orange Core Gummed Tape dealer. He can give you the counsel you need—not only on the sealing of cartons and parcels—but on many paper problems in general. If he doesn't have the facts you want, he'll get them for you. Good will is the foundation of his business success.

Service is his yardstick for the paper lines he sells, too—lines that give you *more service* for the money. Typical is Orange Core gummed sealing tape. This brand is unexcelled by any other standard tape for uniformity and dependability—because it is made from tree to finished product under *one* roof. As a bonus it offers you the exclusive Hudson feature—*Supple-izing**—preventing tendency to stiffness and curl.

Service is prompt with your Orange Core dealer. Patronize him for *all* your paper needs.

**Copyrighted*

"The world's largest selling gummed tape"

ORANGE CORE

Copyr. H. P. & P. Corp.

GUMMED SEALING TAPE

Available plain or printed, in choice of widths, weights, lengths, and colors

HUDSON PULP & PAPER CORP., Dept. 210, 505 Park Ave., New York 22

Cost Reductions By PAs

(*Continued from page* 496)

diver nor our engineers thought the water clear enough for visibility 90 feet down, they were agreeable to buy the Navy lantern for $7.00, seal it with a compound and take it down. The water was too murky but it cost us $7.00 instead of $75.00 to find out.

Cost Reduction Record Form Produces Results

G. A. Fay,
Purchasing Agent,
Addressograph-Multigraph Corp., Cleveland

WITH the idea of Purchasing for Profit we recently inaugurated in our organization a cost reduction record which is being used by all of our buyers. While we are not unmindful of the savings to be made by obtaining competitive prices we are stressing, in the use of this form, the gains to be made by other means such as: substitution of material, combination of quantities,



G. A. Fay

standardization of parts, etc. In all cases we are cooperating closely with our Engineering Department and other members of the organization who are concerned. Some of the results are as follows:

Substitution on electrical cord sets with standard terminal in place of special terminal. Annual saving $240.00.

Substitution of synthetic rubber for natural rubber on special rubber parts. Annual saving $600.00.

Increased purchases of bond paper to larger ordering quantities than heretofore resulting in annual saving of $840.00.

Eliminating a special flap on an envelope where it is not required. Annual saving $170.00.

This form is producing very satisfactory results and we have many

(*Please turn to page* 500)



Walworth manufactures a *complete line* of Gate, Globe, Angle, Check, and Lubricated Plug Valves, made of Stainless Steel, Steel, Iron, Bronze, and Special Alloys in a wide range of sizes and temperature-pressure ratings.

Fittings of steel, iron, and bronze are also manufactured in all conventional types and sizes.

WALWORTH

valves and fittings

60 East 42nd Street, New York 17, N. Y.

Distributors in principal centers throughout the world



Buy INSTITUTE GRADED WIPERS you'll do a BETTER JOB... and SAVE MONEY!

Insist on wiping cloths bearing the endorsement of the Sanitary Institute of America. The Institute label assures you of completely sanitary and thoroughly clean wipers . . . cloths that give you the maximum in efficiency and service. Institute Wipers are graded, and include a variety of materials and textures. Included are cloths that will fit all the individual requirements throughout the entire plant. Institute Wipers are scientifically processed, and carefully selected for their ability to withstand exceptionally hard usage. They are highly absorbent, and remain so for a long period.

For added operating *efficiency* and *economy*, consult your nearest Institute member. He is qualified to give you expert advice on the selection of the proper wipers for each operation in your plant.

The Sanitary Institute of America has a membership of over one hundred leading industrial wiping cloth processors in twenty-seven States and Canada. This advertisement is sponsored by the members listed here.

For prices and samples, write any member. For Institute specifications, write any member or The Sanitary Institute of America, 105 West Monroe Street, Chicago 3, Illinois.

AKRON, OHIO:
Akron Cotton Products Co., Inc.
406 S. High St. (11)
ASHEVILLE, N. C.:
Ness Sanitary Wiping Cloth Co.
P. O. Box 1267
ATLANTA, GA.:
Rittenbaum Bros.
691-701 Houston St., N. E.
CHICAGO, ILL.:
American Sanitary Rag Co.
336 W. 37th St. (9)
Burcott Mills
309 N. Desplaines St. (6)
COLUMBUS, OHIO:
Rose Wiping Cloths
1974 S. 4th St. (7)
DETROIT, MICH.:
Wolf Sanitary Wiping Cloth Co.
515 Wanda St. (20)
DULUTH, MINN.:
Northwestern Wiping Cloth Co.
438 S. Lake Ave. (2)
KANSAS CITY, MO.:
Purity Textiles Co. of Kansas City
4010 E. 31st St. (2)
MEDFORD, MASS.:
Mystic Waste Co.
30 Ship Ave. (55)
NEW ORLEANS, LA.:
Rosen Sanitary Wiping Cloth Co., Inc.
859 S. Front St. (10)
NEW YORK, N. Y.:
Sterilized Wiping Cloth, Inc.
1281 Viele Ave. (59)
OMAHA, NEB.:
Peerless Wiping Cloth Co.
6th & Pacific Sts. (8)
PHILADELPHIA, PA.:
The J. Milton Hagy Waste Works
4946-50 Parkside Ave. (31)
PITTSBURGH, PA.:
Armstrong Sanitary Wipers Co.
1233 Spring Garden Ave., N.S. (12)
Scheinman-Neaman Co.
1024 Vickroy St. (19)
TROY, N. Y.:
Troy Sanitary Wiping Cloth Co.
P. O. Box 222

THE SANITARY INSTITUTE of AMERICA

CLARK
QUALITY INDUSTRIAL FASTENERS SINCE 1854



Bolts . . . Nuts . . .
Rivets . . . Screws—have provided their users with almost 100 years of the same dependable uniformity of quality and accuracy of finish that has made CLARK Products famous for their greater security and ease of application.

For Greater Security...
Fasten Fast with Clark Fasteners

CLARK BROS BOLT CO.
MILLDALE, CONN.

6-M-2a

BOLTS • NUTS • RIVETS • SCREWS

---

the A-B-C of M-S-T

A ALWAYS MAKES POSSIBLE
B BETTER PRODUCTS
C AT LOWER COST

Michigan
Electric Resistance
WELDED STEEL TUBING
A Quality Product



Muffler Inlet Pipe

ROUND
⅜" to 4" O. D. 9 to 22 gauge
SQUARE - RECTANGULAR
½" to 2" 20 gauge, 1" to 2¼", 14, 16, 18 gauge
Carbon 1010 to 1025 *Can be Bent,*
FLANGED, EXPANDED, TAPERED, DEPRESS BEADED, EXPAND BEADED, ROLLED, EXTERNAL UPSET, INTERNAL UPSET, SPUN CLOSED, FORGED, BEVEL FLANGED, FLATTENED, SWAGED FLUTED.

This is an excellent example of Michigan workmanship in the performance of several intricate fabricating operations to most exacting tolerances.

The pipe manifold end is expanded to 2.225" I. D., a flange superimposed, and a flanged ferrule press-fitted for immediate assembly to exhaust manifold. Two bending operations with minimum reductions permit full flow of gas to hold back-pressure to a minimum. Muffler end diameter of tube is increased by expanding and a bead superimposed to form a "gas-tight" joint.

Michigan engineering and fabrication know-how make for accuracy and economy in the manufacture of this and many other tubular products. Why not consult Michigan about your fabrication problem.

Michigan STEEL TUBE PRODUCTS CO.
THE OLDEST NAME IN ELECTRIC RESISTANCE WELDED STEEL TUBING
More than 35 Years in the Business
9450 BUFFALO STREET • DETROIT 12, MICHIGAN
FACTORIES: DETROIT, MICHIGAN—SHELBY, OHIO

DISTRIBUTORS: Steel Sales Corp., Detroit, Chicago, St. Louis, Milwaukee, Indianapolis and Minneapolis —Miller Steel Co., Inc., Hillside, N. J.—C. L. Hyland Co., Dayton, Ohio—Dirks & Company, Portland, Oregon —James J. Shannon, Milton, Mass.—Service Steel Co., Los Angeles, Calif.—Hugh Davis, Jr., Sewickley, Pa.— Strong, Carlisle & Hammond Co., Cleveland, Ohio—Globe Supply Co., Denver, Colorado—W. A. McMichaels Co., Upper Darby, Pa.—A. J. Fitzgibbons Co., Buffalo, N. Y.—Harry E. Clark & Co. Houston, Texas—J. B. Beaird Co., Inc., Shreveport, La.



V-BELTS of tough neoprene resist attack from grease and oils.



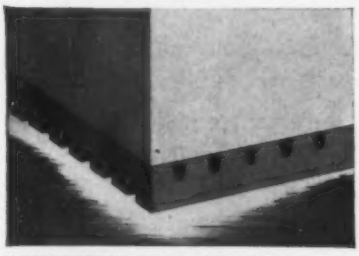
AIR HOSE with neoprene cover resists sunlight, weathering, aging.



CONVEYOR BELTS of neoprene resist heat, have long service life.



MINE CABLE with neoprene jacket won't propagate flame, resists abrasion, cutting, chipping.



VIBRATION DAMPENERS of neoprene resist permanent distortion, stay resilient, last longer.

NEOPRENE PRODUCTS LAST *LONGER*

...give outstanding service where many other resilient materials fail

Ask your supplier about neoprene's performance in products like V-belts, conveyor belts, gaskets, hose, protective coatings, and motor mounts. He'll be glad to tell you about case after case where *neoprene* was the answer to a difficult production or maintenance problem. Although Du Pont makes no finished goods of neoprene, perhaps we can be of assistance in determining the resilient material you should use. Write to: E. I. du Pont de Nemours & Co. (Inc.), Rubber Chemicals Division S-5, Wilmington 98, Delaware.

DU PONT
REG. U.S. PAT. OFF.

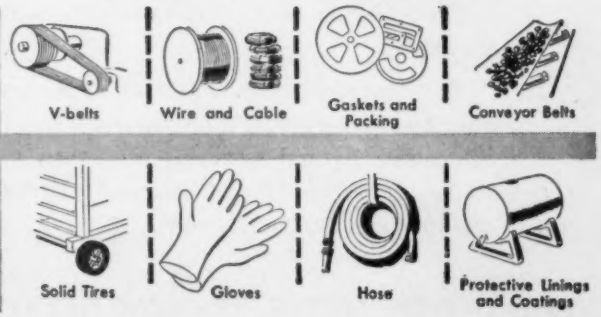
150th Anniversary

BETTER THINGS FOR BETTER LIVING...*THROUGH CHEMISTRY*

NEOPRENE

The Rubber Made by Du Pont Since 1932

Specify* Neoprene *in these products:





Ever since you were knee-high to a hop-toad, you've heard about America's wonderful *natural resources*—the bountiful fertile fields, the towering timber growth, the boundless water power, and the untold wealth of gold, iron, oil, silver, coal and other natural treasures that lie buried in the ground.

Is it because America has *more* natural resources than any other country that Americans enjoy the world's highest standard of living? No—many countries have as much—some have more.

Then is it because Americans *do* more with what they've got?

Yes! And the reason is as plain as the nose on your face. It's because Americans are free to develop their natural resources—and their natural resourcefulness—in the wholesome climate of *open and strenuous COMPETITION.*

COMPETITION—not "regimentation"—is what eggs a man on to do his best.

COMPETITION—not government control—is what urges a business to give its customers ever greater value for their money.

So let's say "NO SALE" to the *ism* peddlers who would have us swap our U. S. A. system of free competition for their "planned" regimentation—trade our U. S. A. freedom and plenty for their serfdom and poverty!

* * *

This report on PROGRESS-FOR-PEOPLE is published by this magazine in cooperation with National Business Publications, Inc., as a public service. This material, including illustration, may be used, with or without credit, in plant city advertisements, employee publications, house organs, speeches or in any other manner.

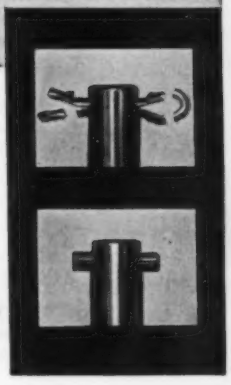
THE COMPETITIVE SYSTEM DELIVERS THE MOST TO THE GREATEST NUMBER



Rollpins outlast standard cotter pins more than ten to one!

Standard heat-treated cotter pin after only 3 hours on fatigue tester.

Rollpin after 50 hours on fatigue tester. It will outlast any other fastener on the market.



ROLLPIN FASTENERS

now available on Morse Roller Chains

Now, Morse gives you this tested, proved answer to cotter-pin failure in roller chains. It's the Rollpin, most reliable, longest-lived fastener ever incorporated into a power transmission chain.

The Rollpin is a chamfered-end, heat-treated, slotted steel cylinder that is compressed into a pin hole smaller than the Rollpin's own diameter. The Rollpin expands and locks into place until deliberately removed by hammer and punch. It can't fatigue out even under the most severe working conditions.

The Rollpin is another outstanding example of Morse Roller Chain leadership, which has already given you the benefits of shot peening and many other advanced metallurgical refinements.

At no increase in price, Rollpin fasteners are currently available in most of the larger pitches of both standard and heavy-series Morse Roller Chains. If you have been experiencing cotter-pin failure, specify Morse Roller Chain *with Rollpins*. Standard cotter-pin chains are available and will be furnished unless otherwise specified.

M = PT, Morse *means* Power Transmission

MORSE CHAIN COMPANY

Dept. 321 • 7601 Central Ave. • Detroit 10, Michigan

Morse *means* Power Transmission

MORSE
MECHANICAL
POWER TRANSMISSION
PRODUCTS

PRODUCTS OF B-W BORG-WARNER



Dealing direct with Fischer is one sure way of reducing product cost. With Fischer's one-price-to-all sales policy you get the lowest price. And what's more, you get guaranteed precision plus the personal service of a Fischer Factory representative. Let Fischer prove that your costs can be lowered . . . ask Fischer to quote prices.

Fischer Special Mfg. Co.

"turned products since 1905"
Cincinnati 6, Ohio



Electric Motor



Makers and Users



Need this Catalog



of Components



Send for it

Attach this coupon to your letterhead



Midwest Molding AND Manufacturing COMPANY

Triple "M" Electronents Division 4630 W. Fullerton Ave., Chicago 39

SEND IT TO MR. _____

Manufacturer _____

Street _____

City _____ Zone ____ State ____

Since 1884

the Dependable... Experienced... Fully-Equipped Source for Quality Name Plates at Production Prices

George J. Mayer Co.

Whatever Your Name Plate Needs, Mayer Will Fill Them Well!

Complete facilities to produce quality name plates of every type are at your service. They include even a fully equipped shop to make the tools and dies required for your plates! We handle any process . . . etched, lithographed, stamped or embossed . . . any metal, any colors . . . decorative, bezels, escutcheons, intricate formings. You are invited to take advantage of the skill of our artists without obligation, and you can depend on Mayer for quick prices . . . prompt delivery . . . highest quality. Write us today!

Send for Free Booklet . . .

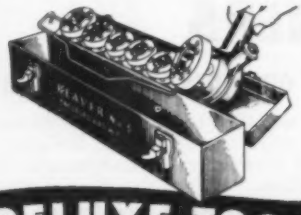


"Add Fame to Your Name" with Name Plates by Mayer

This booklet shows you Mayer's unsurpassed facilities for designing and producing the finest name plates economically. Also illustrates many examples in full color of name plates by Mayer for some of America's foremost manufacturers.

GEORGE J. MAYER CO. • Dept. C, 546 E. Market, Indianapolis, Ind.

Sales Offices in Leading Industrial Centers



A DELUXE TOOL *with enclosed ratchet — for safety*

BEAVER NO. 3

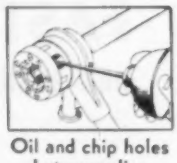
THREADS PIPE 1/8 TO 1 INCH
THREADS BOLTS 1/4 TO 1 INCH

● A world-wide favorite for 40 years. Ratchet teeth fully enclosed —for safety. Openings between dies for easy oiling and chip clearance. Dies square in shape—no weak sections. Can be inverted for close threading. Made right or left-hand. Dies available for conduit and brass tubing. Die head carrier, free. Metal case available, extra. Write for new catalog.

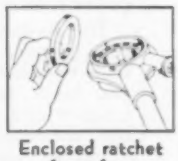
BEAVER PIPE TOOLS

228-300 DANA AVE. • WARREN, OHIO, U.S.A.

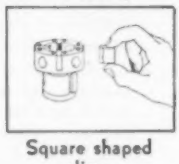
"Over 50 Years of Friendly Service"



Oil and chip holes between dies.



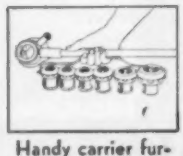
Enclosed ratchet for safety.



Square shaped dies, no weak section.



Bolt dies available.

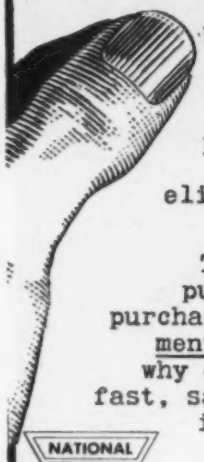


Handy carrier furnished free.

Shipping Reminder:

'The Best Way' to use your

PURCHASING POWER



Wise purchasing agents know that careful purchasing is not their entire job. They also want to be sure of prompt, economical delivery of their purchases...help eliminate material bottlenecks and sustain profit margins.

That's why - more and more - purchasing agents apply their purchasing power to control shipment of their purchases. That's why - to get direct routing and fast, safe delivery - wise purchasing agents specify "ship via National Carloading" on their purchase orders.

NATIONAL N FMB #388

"THE BEST WAY"

NATIONAL CARLOADING CORPORATION

Judson-Sheldon Division · Judson Freight Forwarding Division

19 RECTOR STREET, NEW YORK 6, N. Y.

A COMBINATION OF SAVINGS FOR YOU!

DIE CASTING by YODER



Machining, material and assembly time were saved by ingenuity and skill in combining three parts into this one die casting. Discover the savings in production that YODER Die Casting can show you! Call, wire, or write today!

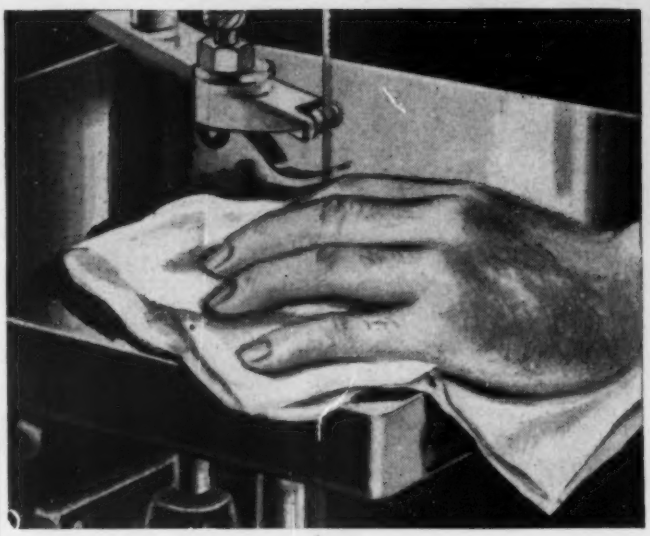
Centrally located to industrial producers

Yoder

DIE CASTING, INC.

730 Kiser Street • Dayton 4, Ohio

For wiping and polishing



Kimwipes*...

new industrial tissues

At last! A new, efficient cleaning material for a myriad of special wiping uses. Soft, fresh KIMWIPES* industrial wiping tissues. Easy and pleasant to handle—use a fresh, clean tissue for each application, and throw away. Recommended for use on all highly finished surfaces. Highly absorbent—picks up and holds all kinds of liquids.

Useful in machine shops, packing rooms—almost any type of business, for any type of job.



Automatic serve-up packages

The Bureau of Federal Supply stocks Kimwipes size 15" x 18" in all Supply Centers under stock item #53P23121-800.

Kimwipes

INDUSTRIAL WIPING TISSUES

A product of Kimberly Clark Research

*T. M. REG. U. S. PAT. OFF.

KIMBERLY-CLARK CORPORATION P-552
Neenah, Wisconsin
Please send me Kimwipes literature.

Name _____

Firm Name _____

Address _____

City _____ *Zone* _____ *State* _____

ALCOA makes a complete line of corrosion-resistant Aluminum fasteners



Nuts, screws, bolts, washers and rivets are available in all standard sizes and threads. Piece for piece they cost less than any other quality line of corrosion-resistant fasteners.

ALUMINUM COMPANY OF AMERICA
1927E Gulf Building
Pittsburgh 19, Pa.

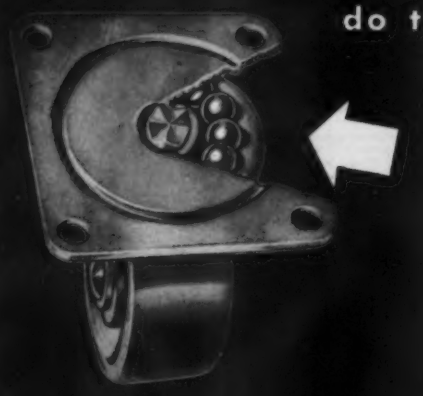
ALCOA

Fasten Aluminum with Alcoa Aluminum Fasteners



NOW 6:30 P. M. EDST every Sunday—"SEE IT NOW" with Edward R. Murrow . . . brings the world to your armchair . . . CBS Television

ABBOTT BALLS do the job right HERE



Abbott Bearing Balls make casters and other swivel base products turn smoothly and evenly. Every Abbott Ball ***deep hardened*** with a mirrorlike, glass hard finish is shock resistant and performs efficiently under high load factors. Use Abbott . . . *the all round ball.*

ABBOTT

THE ABBOTT BALL COMPANY
15 Railroad Place, Hartford 10, Conn.

Are Your Catalog and Information Files Up-to-Date?

Here's a way to add the latest data on new developments to your catalog and information files with a minimum of effort.

The Reader Service Department of Purchasing Magazine will obtain for you any of the new trade literature listed on pages 19, 21, 22, 24.

Use the convenient coupon on page 19. Simply circle the numbers of the items on which you want literature or further information.

Check these pages now, mentioning month of issue, and send your request to:

Reader Service Department
PURCHASING MAGAZINE
205 E. 42nd St., New York 17, N. Y.



FRENCH & HECHT DIVISION
KELSEY-HAYES WHEEL COMPANY
DAVENPORT, IOWA, U. S. A.

72 East River Street, Davenport, Iowa

DETECTO SCALES

There's a precision-accurate Detecto Scale for your specific weighing and counting need. The Detecto helps increase production, yet assures you maximum accuracy by making slightest weight discrepancies immediately visible.



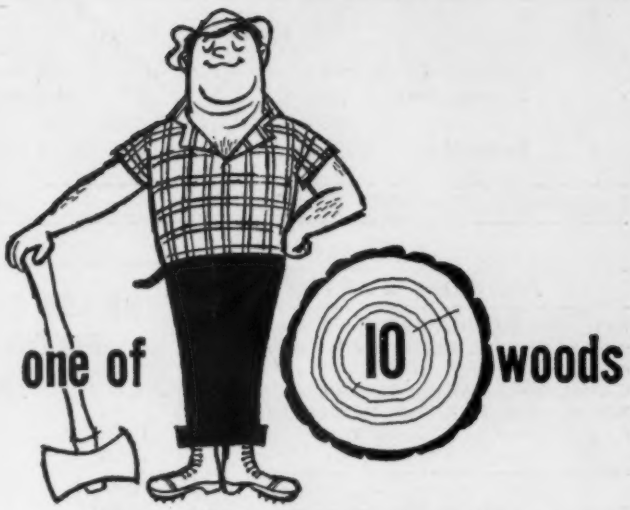
DETECTO ALUMINUM SPEED SCALE

For increased production at lower cost! One operator with one Speed Scale does as much as two operators with ordinary scales. Sturdy, precision built, super-accurate. Ends overweight losses.

Write for Literature

DETECTO SCALES • INC.
MAKERS OF FINE SCALES SINCE 1900
545P PARK AVE. • BROOKLYN 5, N. Y.
SCALE ENGINEERS IN ALL PRINCIPAL CITIES

LARCH



from the WESTERN PINE REGION

A distinctive straight-grained wood with a strength, toughness of fiber and rigidity which make it ideal for structural and framing members of farm, home and industrial buildings. Excellent workability, fine texture and ability to take and hold all types of paints and stains recommend it for interior woodwork too.

This is but one of ten fine softwoods from member mills of the Western Pine Association. All are manufactured, seasoned and graded to exacting Association standards. Lumber dealers, builders, architects and wood users have found them dependable and best for many construction uses.

THESE ARE THE WESTERN PINES

IDAHO WHITE PINE
PONDEROSA PINE • SUGAR PINE

THESE ARE THE ASSOCIATED WOODS

LARCH • DOUGLAS FIR
WHITE FIR • ENGELMANN SPRUCE
INCENSE CEDAR • RED CEDAR
LODGEPOLE PINE



Write for free illustrated book about Larch. Address: Western Pine Association, Yeon Building, Portland 4, Oregon.

BUYER'S & SELLER'S MART

Contract Work • Equipment For Sale • Employment and Business Opportunities

RATES

Undisplayed (set solid)	90¢ line
Positions Wanted	45¢ line
Displayed	$8.50 inch

REQUIREMENTS

Undisplayed (want-ad style), minimum charge 4 lines, prepaid. Figure forty-four letter spaces (five average words) to a line. Add one line for box number address; replies forwarded without charge.

Discount of 10% for twelve consecutive displayed insertions. Forms close 15th of month preceding date of publication.

Send orders to: CLASSIFIED DEPARTMENT • PURCHASING • 205 East 42nd Street, New York 17, New York

POSITIONS WANTED

ASST. PURCHASING AGENT Big Name Construction Co. NYC. Desires new connection. NYC or Suburban Jersey. Graduate M.E., six years Construction Purchasing Experience. Age 38, Veteran. Box 1337, PURCHASING 205 East 42nd St., New York 17, N. Y.

Purchasing—Graduate chemist desires opportunity to enter general purchasing or related fields. Recent graduate, single, 25, willing to re-locate, one year's laboratory experience. Draft exempt. PURCHASING, Box 1336, 205 E. 42nd St., New York, 17, N. Y.

Purchasing agent or assistant—Machine shop, machinery manufacturing background, buying, expediting, sub-contracting, knowledge inventory control; associate mechanical engineering degree—39 years of age. Desires position in far west— Colorado or California preferred. Box 1335, PURCHASING, 205 East 42nd St., New York 17, N. Y.

I am an assistant purchasing agent in a large textile plant. Have had a very good training for the past 14 years. Cost accounting ability. Desire to better myself. Future here limited by conditions outside of my control. Box 1330 PURCHASING, 205 E. 42nd St., New York 17, N.Y.

Purchasing Agent-Controller seeks greater responsibility in growing industry. Experienced with Central Purchasing and Closed Budgets. Have held key positions in the Gas Pump, Publishing, and Educational Organizations. Age 35. Reply to Box 1339, PURCHASING, 205 E. 42nd St., New York, N. Y.

SURPLUS TUBING STOCK

Cupro-Nickel

1" x .049 wall x 10' & 12' lngths
2" x .065 " x 10' & 12' lngths
3" x .065 " x 10' lngths
4" x .083 " x 10' lngths

Better hurry to get this material

L. C. Thomsen & Sons, Inc.

Kenosha, Wisc.

ATTENTION PURCHASING AGENTS
10,000,000 Speed Nuts

Below Mill Price
Various Sizes—Immediate Delivery
Also Nuts—Bolts—Wire Clips—T-Bolts

ASCO—988 Winder

Detroit 7, Mich.—WOodward 2-1757

BRASS COMPRESSION FITTINGS (NEW)

FOR SALE

10,000 ..... ½" IP x ½" CC—90°
10,000 ..... ½" IP x ½" CC
10,000 ..... ⅜" IP x ⅜" CC—90°
11,000 ..... ⅜" IP x ⅜" CC

STAR MANUFACTURING COMPANY

6300 St. Louis Ave. • St. Louis, Mo.

FOR SALE

One only Lincoln-Schlueter Auto scrubber, twin disc brush, 30" spread, automatic suction pickup, 110 volt, 60 cycle, AC, 1 phase.

Two Invincible Sweepers, model UP, 110 volt, 1 phase, ¾ HP, 60 cycle, AC-DC.

One Invincible Sweeper, model 460, 1½ HP, 60 cycle, 1 phase, AC-DC.
These sweepers do not have hose or tools.

One American Woodworking Machine Company Round Head 12" Jointer, 3 HP, 220 volt, 60 cycle, 3 phase, with 4½" flat leather belt & sheaves.

All above machines in excellent condition. For further information write J. F. Vanni, Purchasing Agent, The M. O'Neil Company, 226 South Main Street, Akron 8, Ohio.

BUSINESS OPPORTUNITIES

Structural and Plate Fabricator located in Southeast desires additional products. Will purchase outright or manufacture and sell same on royalty basis. Very well rated. 20 men in Engineering Department, 125 men in Shop. Write Box 1338, PURCHASING, 205 E. 42nd St., New York 17, N. Y.

BRIDGE CRANES

ARNOLD HUGHES COMPANY

765 Penobscot Bldg. Detroit, Mich.
WOodward 1-1894

WANTED
BRIDGE CRANES

ARNOLD HUGHES COMPANY

765 Penobscot Bldg. Detroit, Mich.
WOodward 1-1894

WANTED
SURPLUS ABRASIVES

Sheets - Rolls - Belts

in

Aluminum Oxide - Silicon Carbide

- Garnet

Submit Your Offering

ROYALE ABRASIVE CO.

1550 N. Dayton St., Chicago 22, Ill.

WANTED

SURPLUS SCREWS, NUTS, BOLTS
WASHERS

R. A. HIRSCH CO.

547 W. Lake St. Chicago 6, Ill.

ABRASIVES WANTED

Rolls, Sheets, Wet-or-Dry Belts, Rotary Files, Grinding Wheels, etc.
Cash in on your surplus. Write:

K & K SALES

525 W. 76th St. Chicago 20, Ill.
Phone: RAdcliffe 3-1818

NOW for complete protection

FROM THE WET • GREASE • OILS • ORDINARY ACIDS

TOWER'S

FISH BRAND *NEOPRENE



These sturdy, durable, 100% DuPont **NEOPRENE** garments give that extra service to those who require protection from greases, oils, and most acids. There is a TOWER protective garment especially adaptable for every type of industrial activity. We will be glad to recommend the garment which best meets your individual requirements.



**A chemical rubber product of the DuPont Company*

For folder of styles and detailed information write Department PA.

NEOPRENE RUBBER

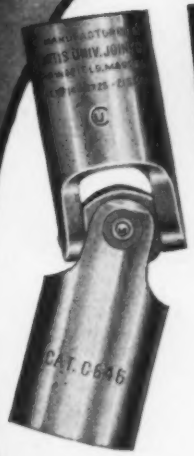
TOWER'S FISH BRAND

A. J. TOWER CO.

24 SIMMONS ST. BOSTON, MASS.

TOWER'S ARROW BRAND

Your Best Buy



CURTIS

Exclusively a manufacturer of

UNIVERSAL JOINTS

Specify Curtis Universal Joints if you want fast delivery and efficient service.

- Single or Double
- Solid Centered, or Bored
- Standard for Heavy Duty
- Lo-Friction for special duty
- Assured Quality — Curtis exceeds Class I standards for the Army, Navy and Air Force
- Few Parts — mean easy assembly and disassembly
- Made of alloy steels, each part specially heat treated—for long life
- 14 sizes — ⅜" to 4" O.D. — always in stock (up to 6" O.D. to order if required)
- Facilities and engineering skill immediately available for special application requirements

Write today for engineering data and price list

the only Universal Joint with the



"Telltale" 9 Lock Ring (patented)

CURTIS UNIVERSAL JOINT CO., INC.

15 Birnie Ave., Springfield, Mass.

As near to you as your telephone

A MANUFACTURER OF UNIVERSAL JOINTS SINCE 1919

MUELLER BRASS CO. ALLOYS FOR AVIATION'S TOUGHEST APPLICATIONS



"803" • Mueller Brass Co. "803" metal is a high silicon iron-copper bronze that is ideally suited for many difficult applications in jet aircraft. "803" metal has unusually good machinability, and it is extremely ductile. It is non-galling and has excellent mechanical properties at temperatures up to 500°F., factors that account for its wide use as roller bearing cages and other specialty parts in jet engines.

"600" SERIES • "600" series are high strength bearing bronzes that do not contain any hard-to-get tin. They can be forged into relatively complicated shapes that are closer to size and require less machining than sand castings. "600" series metals have a low coefficient of friction and a tensile strength 2½ times that of the cast phosphor bronzes. They are highly resistant to wear and corrosion. These properties make "600" series highly desirable for use as parts on hydraulic equipment, actuators and instruments in jet aircraft. "600" series metals are available in standard or special extruded shapes up to 12' mill lengths. There is a "600" series alloy to suit your special bearing metal needs.

TUF-STUF • Mueller Brass Co. TUF-STUF aluminum bronze alloys have found wide acceptance for jet aircraft parts like the rotor for hydraulic pumps and other vital jet engine parts that must stand up. TUF-STUF alloys are corrosion resistant . . . strong and light and extremely long-wearing. They resist oxidation, even at high temperatures. TUF-STUF alloys are available in the form of forgings, rods and screw machine parts. They fill Federal Specification QQ-B-666, Grade B, and several other variations.

For complete information about "803" metal, the "600" series alloys and TUF-STUF, write today to

82-A

MUELLER BRASS CO. PORT HURON 21, MICHIGAN

Advertisers IN THIS ISSUE



A

Abbott Ball Company, The 508
Acushnet Process Company 394
Adam Electric Co., Frank 200, 201
Aerol Co., Inc. 450
Air Express Div., Railway Express Agency, Inc. 10
Air Reduction Sales Co. & Subsidiaries 445
Alan Wood Steel Company 396
Allegheny Ludlum Steel Corp. 387
Allen Mfg. Co. 23
Allis-Chalmers Mfg. Co. 47, 329
Allison Company 386
Alloy Rods Company 407
Aluminum Company of America
Distributors 497
Fasteners 508
Mill Products 370, 371
American Brake Shoe Co., National Bearing Div. 477
American Brass Co., The 313, 314
American Chain & Cable Co., Inc. 84, 318
American Crucible Products Co., The 428
American Hoist & Derrick Co. 452
American Lithofold Corp. 250, 251
American Monorail Company, The 410
American Optical Company 392
American Rivet Company 362
American Screw Company 333, 463
American Steel & Wire Company
80, 81, 206, 207, 393, 435
American Writing Paper Corp. 259
Amplex Corp. 458
Anaconda Copper Mining Co. & Subsid. Cos. 313, 314
Anti-Corrosive Metal Products Co., Inc. 306
Armour Sandpaper Works 354
Arrow-Hart & Hegeman Electric Co., The 486
Art Steel Sales Corp. 255
Athenia Steel Co. 459
Atlas Plywood Corp. 70
Autographic Register 260
AVCO Lycoming Spencer Division 379

B

Babcock & Wilcox, Refractories Div. 317
Babcock & Wilcox Co., The, Tubular Products Div. 427
Bakelite Co., a Div. of Union Carbide & Carbon Corp. 55
Barreled Sunlight Paint Co. 425
Bassick Co., The 516
Bay State Abrasive Products Co. 339
Beaver Pipe Tools, Inc. 506
Behr-Manning Corp. 56, 57
Bemis Bro. Bag Co. 82, 328
Bendix Aviation Corp., Scintilla Magneto Div. 83
Bethlehem Steel Co. 279
Billings & Spencer Co. 296
Black & Decker Mfg. Co. 319
Blake & Johnson Co., The 333
Blaw-Knox Co. 466
Boorum & Pease Company 256
Bossert Company 480
Boston Woven Hose & Rubber Co. 493
Bridgeport Brass Co. 513
Bridgeport Chain & Mfg. Co., The 424
Briggs & Stratton Corp. 374
Bristol Brass Corp. 457
Bristol Company, The 283, 348
Brown Bag Filling Machine Co., Inc. 302
Brown Company 461
Brown & Sharpe Mfg. Co. 342, 343
BullDog Electric Products Co. 431
Bundy Tubing Co. 475
Bussmann Mfg. Co. 72, 73
Burroughs Adding Machine Co. 239

C

Camcar Screw & Mfg. Co. 333
Carborundum Co., The 308, 309
Carey Mfg. Co., Philip 364
Carpenter Steel Co., The 46
Central Screw Co. 333, 413
Century Electric Company 1
Chase Bag Co. 230
Chase Brass & Copper Co., Inc. 355
Chester Hoist Div., National Screw & Mfg. Co. 290
Chicago Rawhide Mfg. Co. 318
Chicago Thrift-Etching Corp. 478
Chicago Wheel & Mfg. Co. 282
Cities Service Cos. 281
Clark Bros. Bolt Co. 502
Clark Equipment Co., Industrial Truck Div. 273
Classified Advertising Section 510
Cleveland Cap Screw Co. 391
Cleveland Chain & Mfg. Co., The..... 424
Cleveland Container Co., The 360
Cleveland Metal Abrasive Company 213
Cleveland Twist Drill Co. 403
Coffing Hoist Company 356
Colorado Fuel & Iron Corp., Wickwire Spencer Steel Div. 58
Colson Corp., The 438
Columbia Ribbon & Carbon Mfg. Co., Inc. 257
Columbia Southern Chemical Corp. 219
Columbia Steel Company
80, 81, 206, 207, 393, 435
CONOVER-MAST PURCHASING DIRECTORY 262
Continental Can Company 60
Continental Diamond Fibre Co. 307
Continental Rubber Works 380
Continental Screw Co. 333
Continental Steel Corp. 39
Copeland Displays 324
Corry-Jamestown Mfg. Corp. 258
C-O Two Fire Equipment Co. 485
Crane Co. 14
Crucible Steel Company of America 447
Cullman Wheel Company 289
Curtis Universal Joint Company, Inc. 511

D

Darnell Corp., Ltd. 494
Davidson Rubber Company, The 430
Dayton Rubber Company 298, 299
De Laval Steam Turbine Co. 44
Detecto Scales, Inc. 509
Dixie Leather Corp. 389
Dodge Manufacturing Corp. 455
Dolge Co., C. B. 344
Dow Chemical Co., The 358, 359
Dow Corning Corp. 334
du Pont de Nemours & Co., Inc., E. I. 503
Duff-Norton Mfg. Co. 336

E

Eagle-Picher Sales Co., The 472
Eberhard-Faber Pencil Co. 262
Elastic Stop Nut Corp. of America 419
Elco Tool & Screw Corp. 333
Electric Auto-Lite Co. 441
Electric Products Company, The 290
Electric Storage Battery Co. 62
Electro Metallurgical Co. a Div. of Union Carbide & Carbon Corp. 326, 327
Emerson Electric Mfg. Co. 221
Emery Air Freight Corp. 467
Esleeck Mfg. Co. 254
Essex Wire Corp., R-B-M Div. 476
Esterbrook Pen Co., The 240, 241
Evans & Company 480
Evans' Sons, John 490
Ex-Cell-O Corp. 437

F

Fafnir Bearings Co. 295
Fairbanks Company, The 368
Fairbanks, Morse & Co. 292, 293
Federal Business Products, Inc. 263
Federal Telephone & Radio Corp. 465
Federated Metals Div., Amer. Smelting & Refining Co. 54
Fischer Special Mfg. Co. 505
Fiske Bros. Refining Co., Lubriplate Div. 331
Ford Mfg. Co., Inc., M. A. 456
Forest City Foundries Co. 414
Frasse & Co., Inc., Peter A. 515
French & Hecht Div., Kelsey-Hayes Wheel Co. 509
Fuller Brush Co. 322

G

Gair Company Inc., Robert 405
Gates Rubber Company 397
Gaylord Container Corp. 429
General Box Co. 2
General Electric Company
Apparatus Div. 9, 75, 76, 77, 78, 216, 217
Construction Materials Div. 311
Lamp Div. 367
Trumbull Department 301
Water Coolers 444
Gilbert Associates, Inc. .....3rd Cover
Gilman Bros. Co. 346, 347
Gits Bros. Mfg. Co. 423
Gits Molding Corp. 474
Glas-Kraft, Inc. 462
Globe Steel Tubes Co. 433
Goodrich Co., B. F. 31, 32, 33, 34
Goodyear Tire & Rubber Co., Inc. 209
Gould-National Batteries, Inc. 269
Graton & Knight Company 389
Graybar Electric Co., Inc. 4
Great Lakes Screw Corp. 333
Great Lakes Steel Corp. 193
Greenfield Tap & Die Corp. 49, 50
Grinnell Co., Inc. 227

H

Hanson-Van Winkle-Munning 330
Harnischfeger Corp. 415, 454
Harper Company, H. M. 333
Harrington & King Perforating Company 488
Harrisburg Steel Corp. 282, 347, 464
Hassall, Inc., John 430
Hinde & Dauch Paper Co. 203
Hobbs Mfg. Co. 450
Hobson-Miller Paper Co. 249
Hodell Chain Co., Div. National Screw & Mfg. Co. 324
Hoover Company, The 412
Hotel Hollenden 494
Howe Scale Co., The 450
Howell Electric Motors Co. 42
Hudson Pulp & Paper Corp. 498

I

Illinois Coil Spring Co. 344
Independent Pneumatic Tool Co. 69
Indiana Glass Company 316
Industrial Marking Equipment Co., Inc., The 274
Industrial Tape Corp. 468, 469
Inland Steel Company 3
International Business Machines 247
International Packings Corp. 389

J

Jeffrey Mfg. Co., The 479
Jenkins Bros. .....4th Cover
Johnson Bronze Co. 470
Joliet Wrought Washer Co. 388

K

Keasbey & Mattison Co. 26
Kex National Service 448
Kidde & Co., Inc. Walter 487
Kimberly-Clark Corp. 507
Koh-I-Noor Pencil Co., Inc. 264
Koppers Company, Inc. 225
Koven & Brother Inc., L. O. 38
Kurz-Kasch, Inc. 315

L

Ladish Co. 287
Laminated Shim Co., Inc. 40
Lamson Corp. 338
Laughlin Company, The Thomas 408
Lavallee & Ide, Inc. 28
Leschen & Sons Rope Company, A 29
Linde Air Products Co. a Div. of Union Carbide & Carbon Corp. 439
Link-Belt Company 11
Lubriplate Div., Fiske Bros. Refining Co. 331
Lunkenheimer Company 411
Lustra Corp. 398

for "Bridgeport" Service

BRASS
"Bridgeport"
CO.



OFFICES AND WAREHOUSES IN PRINCIPAL CITIES



BRIDGEPORT WAREHOUSE SERVICE

The Bridgeport warehouses are designed to supply from stock limited quantities of sheet, rod, wire or tubing. It is the policy of the company to maintain adequate warehouse stocks at all times so that small orders can be filled without delay.

The fabricator is in a position to obtain promptly metal to fill orders for experimental work or to start production runs, while waiting for mill shipments.

Bridgeport warehouses make every effort to carry the variety of alloys, sizes and gages which fulfill the requirements of the locality they serve.

To take care of the maximum range of widths of strip metal, slitting service is available—not only to serve warehouse stocks, but also to make customers' stocks of non-ferrous strip metal more flexible.

Bridgeport's Warehouse Stocklist carries weight tables and a technical digest giving the properties of the most popular copper-base alloys. If you do not have a copy, ask your nearest Bridgeport office.

Mills in Bridgeport, Conn. and Indianapolis, Ind.
In Canada: Noranda Copper and Brass Limited, Montreal

BRIDGEPORT BRASS COMPANY

"Bridgeport" BRASS CO.

30 GRAND STREET, BRIDGEPORT 2, CONNECTICUT

RHOADS
INDUSTRIAL LEATHERS



...they're ALL-WAYS BETTER

Good reason, too! Special and exclusive tanning processes develop and strengthen the "natural characteristics" of only qualified hides. Combined with skilled workmanship, plus "custom-engineering", these special processes insure *all* Rhoads leather products to be more durable, highly efficient, and most economical. *Rhoads Industrial Leathers are all-ways better.*

Tannate® FLAT LEATHER BELTING

Tannate Leather Belting combines elasticity, full-friction pulley grip, operating stamina for longer service. Is *all-ways* "custom-engineered" to specifications.

Tannate® LEATHER PACKINGS

Tannate Leather Packings are resistant to abrasion and wear, will not cold flow, score or abrade. Recommended for a wide range of temperatures, pressures, and many types of service.

Tannate® UNI-PULL DRIVE

Tannate UNI-PULL Drive automatically maintains constant belt tension for maximum delivery of power . . . combines Tannate Belting for smoother operation, less maintenance.

CALL YOUR RHOADS SALES ENGINEER OR WRITE
J. E. RHOADS & SONS, 35 N. 6th Street, Phila. 6, Pa.

250 YEARS PRODUCING FINE LEATHERS

J. E. RHOADS & SONS
PHILADELPHIA • NEW YORK
CHICAGO • ATLANTA

M

Macwhyte Co. 25
Mall Tool Co. 388
Marr Duplicator Co., Inc. 264
Marsh Corp., Jas. P. 449
Master Electric Co. 357
Mayer Co., George J 506
McLaurin-Jones Co. 382
McLouth Steel Corp. 443
Meehanite Metal Corp. 471
Metal Goods Corp. 363
Michigan Steel Tube Products Co. 502
Midwest Molding & Mfg. Co. 506
Midwest Piping & Supply Co. 291
Milford Rivet & Machine Co. 482
Millers Falls Co. 385
Milwaukee Dustless Brush Co. 416
Mione Mfg. Co. 274
Monarch Rubber Co., The 8
Moore Business Forms, Inc. 266
Morris Co., Bert M. 245
Morse Chain Co. 505
Mueller Brass Co. 511
Mystik Adhesive Products 418

N

National Bearing Div., Amer. Brake Shoe Co. 477
National Carloading Corp. 507
National Electric Products Corp. 409
National Lead Co. 41
National Lock Co. 333
National Lock Washer Co. 473
National Screw & Mfg. Co. 290, 324
National-Standard Co. 459
National Tube Co. 80, 81
National Vulcanized Fibre Co. 71
Newark Wire Cloth Co. 406
New Departure Div. of Gen. Motors 86
New Process Screw Corp. 51
Niagara Blower Co. 312
Nicholson File Co. 18
Norton Company 56, 57, 377

O

Oakite Products, Inc. 352
Ohio Brass Co. 197
Ohio Hoist & Mfg. Co. 424
Ohio Injector Co., The 59
Ohio Seamless Tube Co. 417
Osborn Mfg. Co. 6, 7
Oxford Filing Supply Co. 258

P

Pacific Intermountain Express 324
Page Fence Association 474
Page Steel & Wire Div. 318
Parker-Kalon Corp. 270, 271, 333
Pennsylvania Precision Casting Co. 446
Pheoll Mfg. Co. 333, 442
Plating & Galvanizing Co., The 424
Plumb, Inc., Fayette R. 325
Portable Electric Tools, Inc. 426
Potter & Brumfield 456
Powell Co., William 67
Precision Casting Co., Inc. 16, 17
Punch-Lok Co. 432
PURCHASING MAGAZINE 483
Purdy & Co. Inc., A. R. 402
Pure Oil Co. 205
Pyramid Plastics, Inc. 484
Pyrene Mfg. Co. 434

Q

Quaker Rubber Corp. 373

R

Railway Express Agency, Inc. 376
Railway Express Agency, Inc., Air Express Div. 10
Randles Mfg. Co. 282
Rathborne Hair & Ridgway Box Co. 440
Read Standard Corp. 296, 344, 438
Reading Crane & Hoist Corp. 442
Remington Rand, Inc. 253
Republic Rubber Div. 501
Republic Steel Corp. 237
Resistoflex Corp. 500
Revco, Inc. 436
Revere Copper & Brass, Inc. 300
Reynolds Metals Co. 481
Reynolds Wire Co. 459
Rheem Mfg. Co. 194
Rhoads & Sons, J. E. 514
Richardson Co., The 297
Riegel Paper Corp. 288
Riegel Textile Corp. 267
Roberts Rubber Co., Weldon 446
Rockford Screw Products Co. 333
Rockwood Sprinkler Co. 395
Roebling's Sons Co., John A. 365
Rollins Fleet Leasing 438
Rollway Bearing Co. 74
Rome Cable Corp. 384
Round California Chain Co. 424
Round Chain & Mfg. Co., The 424
Round Chain Companies 424
Round Los Angeles Chain Corp. 424
Round Seattle Chain Corp. 424
Russell, Burdsall & Ward Bolt & Nut Co. 43
Rust-Oleum Corp. 61
Ryerson & Son, Inc., Joseph T. 90

S

Sacks-Barlow Foundries, Inc. 37
Safety Socket Screw Co. 496
Sandvik Steel, Inc. 451
Sanitary Institute of America 502
Scovill Mfg. Co. 333
Screw Research Association 333
Seamaster Div., Stephens-Adamson Mfg. Co. 349
Seamless Rubber Co. 338
Security Steel Equipment Corp. 265
Set Screw & Mfg. Co. 302
Sexauer Mfg. Co., Inc., J. A. 494
Seymour Mfg. Co., The 215
Shakeproof, Inc. 333
Shell Chemical Corp. 211
Sheppard Envelope Co. 258
Sier-Bath Gear & Pump Co. 390
Simmons Fastener Corp. 79
Simonds Abrasive Company 294
Simonds Saw & Steel Co. 421
SKF Industries, Inc. 64, 65, 361
Solvay Sales Div., Allied Chemical & Dye Corp. 399
Southern Chain & Mfg. Co. 424
Southington Hdwe. Mfg. Co., The 333
Sponge Rubber Products Co. 48
Square D Company 20
Stalwart Rubber Co., The 366
Standard Conveyer Company 362
Standard Oil Company (Indiana) 341
Standard Pressed Steel Company 30, 280, 453, 488
Standard Register Co. 243
Standard Tube Co. 332
Stanley Works, The 428
Sterling Bolt Co. 381
Stimpson Co., Inc., Edwin 446
Stuart Oil Co., D. A 356
Sun Oil Co. 305
Superior Foundry, Inc. 378
Superior Steel Corp. 323
Sylvania Electric Products, Inc. 36, 464
Synthane Corp. 369

T

Taylor Forge & Pipe Works 491
Temprite Products Corp. 35
Tennessee Coal, Iron & Railroad Co. 80, 81, 206, 207, 393, 435
Texas Co. .....2nd Cover
Thermoid Co. 228, 229
Thompson & Son Co., The Henry G. 372
Threadwell Tap & Die Co. 422
Timken Roller Bearing Co. 303
Tokheim Oil Tank & Pump Co., Gen. Prod. Div. 286
Torrington Co., The 353
Tower Co., A. J. 511
Triplex Screw Co. 400, 401
Twin-Fast Screw 51
Tyer Rubber Co. 484

U

Udylite Corp. 335
Union Bag & Paper Corp. 45
Union Carbide & Carbon Corp., Bakelite Co. 55
Union Chain & Mfg. Co., The 350, 351
United Screw & Bolt Co. 12
U. S. Rubber Co. 63
United States Steel Co. 80, 81
United States Steel Export Co. 80, 81, 206, 207, 393, 435
United States Steel Supply Co. 80, 81
Universal Chain Co., Inc. 460
Upson-Walton Co., The 375
Utica Drop Forge & Tool Corp. 27

V

Veco 338
Veeder-Root, Inc. 68

W

Wagner Electric Corp. 66
Wagner Litho Machinery Co. 459
Waldes Kohinoor, Inc. 345
Wales-Beech Corp. 333
Wallingford Steel Co. 310
Walworth Co. 499
Ward Leonard Electric Co. 495
Webster Co., F. S. 261
Wellman Bronze & Aluminum Co. 340
Wells Mfg. Corp. 492
West Disinfecting Co. 337
Western Pine Association 509
Westinghouse Electric Corp. 223, 275, 276, 277, 278, 320, 321
Westinghouse Electric Corp., Lamp Div. 52, 53
Wickwire Spencer Steel Div. of The Col. Fuel & Iron Corp. 58
Willson Products, Inc. 420
Wisconsin Motor Corp. 404
Woodhouse Chain Works 424
Worcester Wire Works 459
Wrought Washer Mfg. Co. 404
Wycoff Steel Co. 296
Wyman-Gordon Company 489

Y

Yale & Towne Mfg. Co. 284, 285
Yoder Die Castings, Inc. 507
Youngstown Manufacturing, Inc. 383
Youngstown Sheet & Tube Co. 199

We've got a home...



thanks to-
STRAIGHT-
CHROME

Housing shortages for these little fellows no longer exist . . . thanks to the availability of straight-chrome stainless steel. The manufacturer of the illustrated "dwelling", forbidden the use of chrome-nickel stainless, found a straight-chrome grade that was free of controls—more readily available—and neatly filled all requirements.

Such substitutions are taking place with increasing frequency since the advent of nickel controls. If you find your product on the restricted list—or stainless procurement difficult—we urge that you consider the advantages of making a change. Straight-chrome analyses possess properties that permit their use for a wide range of applications—and it's a good bet that Frasse has one on hand to fill your particular need.

Frasse stocks of straight-chrome stainless steels are in good supply, and Frasse Technical Service is freely available to help guide you in their application. For straight-chrome stainless steels or qualified engineering assistance, call *Peter A. FRASSE and Co., Inc., 17 Grand St., New York 13, N. Y. (Walker 5-2200) • 3911 Wissahickon Ave., Philadelphia 29, Pa. (Baldwin 9-9900) • 50 Exchange St., Buffalo 3, N. Y. (Washington 2000) • P. O. Box 1267, Syracuse 1, N. Y. (Syracuse 73-5241) • Lyndhurst • Hartford • Rochester • Baltimore.*

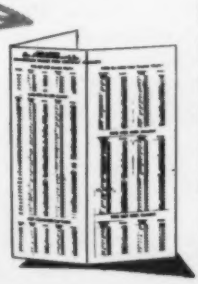
Call FRASSE 1st

for STAINLESS STEEL

Bars	Plates	Pipe
Sheets	Wire	Valves
Strip	Tubing	Fittings

New **Frasse Inventory of Straight-Chrome Stainless Steels**

This latest Frasse inventory shows the straight-chrome analyses carried, and the quantity of each size that is available for immediate shipment. You'll find it handy for reference and a valuable purchasing guide. Send the coupon for your copy today.



30-A

Peter A. FRASSE and Co., Inc.
17 Grand Street
New York 13, N. Y.

Gentlemen: Please send me your latest inventory of straight-chrome stainless steels.

*Name*_____

*Title*_____

*Firm*_____

*Address*_____

Photo—Courtesy of National Aquarium Co.

Panel discussions on how casters help reduce the **"Reducible 30%"***

MATERIALS-HANDLING FORUM

Write us how you've used casters to solve specific handling problems. $25.00 will be paid for material used.

A SERIES PUBLISHED BY BASSICK, WORLD'S LARGEST MANUFACTURER OF CASTERS AND FLOOR PROTECTION EQUIPMENT

EQUIPMENT MADE MOBILE OR HELD RIGID AT TOUCH OF POSITION LOCK LEVER

Now a machine or piece of equipment can be either portable or held securely in a fixed position at the flick of a lever.

This is achieved by installing Bassick Position Locks with Bassick Casters. The lock is easy to apply, with a downward press of the foot lever . . . easy to release, with a slight upward pressure under the lever.



Equipped with grooved base for use on angle iron track

Equipment moving on Bassick Grooved-Wheel Casters and angle iron track reaps the extra advantage of being held securely in place when special Bassick Position Locks are installed, equipped with a base grooved to fit the track.

The grooved-wheel-angle-track assembly method is being used by many of the nation's leading industries (aircraft, auto, etc.) to control movement by keeping all handling equipment in line in fixed position. It makes movement 3-to-1 easier than flat wheels in direct contact with the floor.





Boxing ring on casters and position locks easily moved or held rigid

A unique installation of casters and position locks on alternate legs makes possible easy handling of this boxing ring in an armory.

Bassick Position Locks give adequate stability under rough usage. The ring can be moved quickly and easily by two or three men.



PORTABLE CONVEYOR EFFICIENCY UPPED BY POSITION LOCKS

A greater and more efficient utilization of conveyors is possible with casters and position locks.

Conveyor sections mounted on Bassick Casters can be moved where desired and held securely and safely by Bassick Position Locks while in use.

Moving assembly line made stationary when necessary

Many industries require an assembly line that can be held rigid during certain steps of manufacture.

This is accomplished by installing Bassick Position Locks on caster-equipped trucks. Universal joint action compensates for unevenness of floor surfaces.





Securing portable work ladder in place adds safety feature

Safety can now be economically and efficiently added to the flexibility afforded by caster-equipped work ladders, scaffolds, benches, tool stands, work stands, engine stands, etc.

Bassick Position Locks provide this safety factor . . . placing, when applied, almost 12 square inches of friction locking surface in contact with the floor.

Full details available upon request

Write for catalog data on Bassick Position Locks. There is a local distributor of industrial supplies in your vicinity who handles Bassick casters, wheels and locks for every need. Factory engineering assistance readily available.

THE BASSICK COMPANY, Bridgeport 2, Conn. *In Canada:* Belleville, Ontario.



*According to cost analysts, materials-handling (about 30% of total cost) affords about the only real opportunities for cost reduction today.

Bassick A DIVISION OF STEWART SW WARNER

MAKING MORE KINDS OF CASTERS... MAKING CASTERS DO MORE

LOOK INTO THE SPECIAL FEATURES OF THIS

all-round, money-saving purchasing service



Basically, of course, Gilbert Associates' Purchasing Department offers a *buying* service. Gilbert purchases all sorts of goods—coal, tires, chemicals, tools, and so on—for a number of large concerns. This volume buying helps Gilbert secure low unit-cost on the items purchased.

But that's only the beginning! Gilbert augments this basic service with specialized features seldom available within a client's own organization. *Check these extras:*

WE SECURE PRIORITIES.
If your order needs a priority rating, we automatically follow through.

WE ESTABLISH AND KEEP RECORDS,
including all original cost accounting, continuing property records, valuation work, cost data, and inventory. Your organization is relieved of paper work and the expense of extra personnel.

WE HANDLE FOREIGN SHIPMENTS.
We negotiate directly with the various Shipping Conferences, employ interpreters, maintain contact with foreign government agencies in this country, act as a clearing house.

WE TEST FOR QUALITY.
Our buyers, because of their daily volume purchases, are truly expert buyers. They have a vast knowledge of markets and suppliers. They are aided in their efforts to secure the best by Gilbert's own Testing Laboratory.

WE ANALYZE BIDS.
Our specialists are fully experienced in appraising bids. Gilbert's engineering division aids the Purchasing Department in analyzing engineering bids.

IN OTHER WORDS, Gilbert offers a *complete* Purchasing Service—one designed to save your company time, trouble, and money. We shall be glad to have one of our representatives explain our service more fully. No obligation, of course! Simply write: Purchasing Department, Gilbert Associates, Inc., 412 Washington St., Reading, Pa.

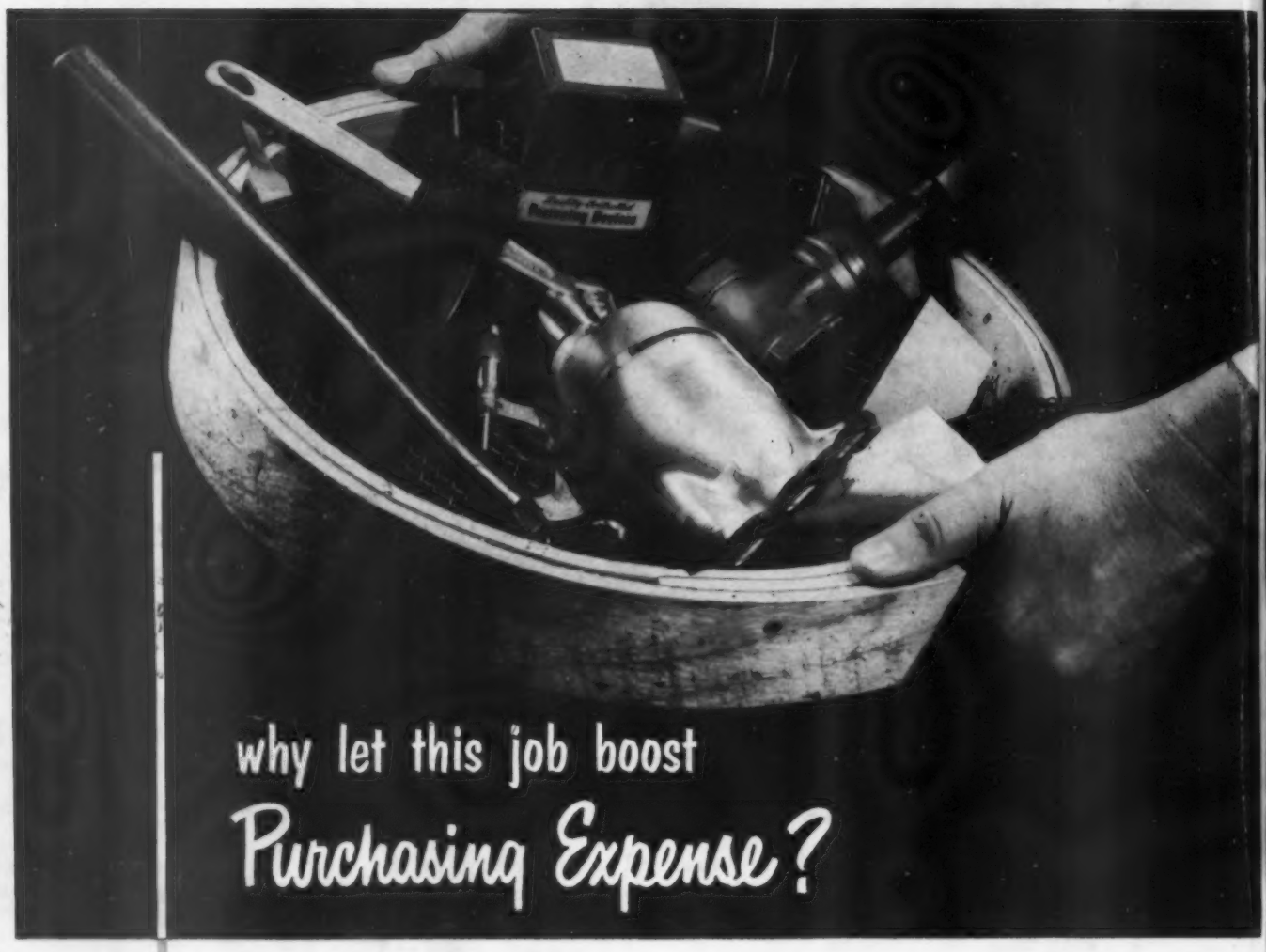
GAI
FOUNDED 1906

GILBERT ASSOCIATES, INC.

ENGINEERS • CONSULTANTS • CONSTRUCTORS

READING, PA.

NEW YORK • PHILADELPHIA • WASHINGTON • HOUSTON • ROME • MANILA • MEDELLIN



SIFTING PRODUCT CLAIMS

is a job that can easily boost your Purchasing expense way out of line. It takes time and money to interview salesmen, evaluate claims. And even with the most thoroughgoing procedure, it is difficult to select what is best for the money . . . for your particular needs.

The INDUSTRIAL SUPPLY DISTRIBUTOR can spare your Purchasing staff much of this investigation and expense. Some 75% of the products you buy are industrial supplies he handles. You can rely on his recommendation for good reasons.

As a supply specialist he has a clear perspective of the merits of all brands of any type product, and can give you unbiased advice.

For his own continuing success he must feature products that *sell*. Since, in the long run, the product that *serves* best *sells* best, you can be sure the products he offers are time-tested for top performance.

Because his success depends, also, on his reputation in the area he serves, every sale he makes must increase the buyer's confidence in his sincerity and judgment. His lines carry a double guarantee . . . his own as well as the product manufacturer's.

Figure your purchasing costs with this in mind. When you do, you'll agree your Industrial Distributor offers more than convenience and resourceful, hard-working service . . . he offers a real money saving, too.

For your valve needs, you can be sure of reliable, experienced cooperation from your Jenkins Distributor.

JENKINS
LOOK FOR THE DIAMOND MARK
VALVES
SINCE 1864 TRADE JENKINS MARK
Jenkins Bros

DISTRIBUTORS' SERVICE IS ESSENTIAL TO INDUSTRIAL PROGRESS